

JOURNAL

OF THE

AMERICAN VETERINARY MEDICAL ASSOCIATION

In This Issue

GENERAL ARTICLES

Genetic, Embryologic, and Neonatal Problems Related to Ionizing Radiations of Interest to Veterinarians— <i>John H. Rust</i>	103
Tuberculosis of Animals	108
Infectious Equine Encephalomyelitis in the United States in 1950	110
The Gaits of Horses— <i>Joseph W. Grogan</i>	112

SURGERY AND OBSTETRICS

Education in Veterinary Obstetrics and Gynecology— <i>Nils Lagerlöf</i>	118
---	-----

CLINICAL DATA

The Use of Barium in Studying the Digestive Tract of the Dog— <i>C. O. Seward</i>	125
Gastric Ulcer in a Large Boar— <i>J. F. Bullard</i>	129
Rabies in Cattle—A Technique for Removal of the Cerebellum for Laboratory Examination— <i>J. Schleifstein and V. Tompkins</i>	130
Bacillary Hemoglobinuria in Kentucky— <i>Ross Brown</i>	132
Hyperkeratosis of Cattle in Germany— <i>Kurt Wagener</i>	133
Evolution of a New Instrument— <i>E. J. Frick</i>	138

NUTRITION

Effect of Previous Diet on Fasting Hypoglycemia	140
---	-----

EDITORIAL

Plans of Large Animal Hospitals Needed	142
--	-----

<i>Surgery and Obstetrics</i>	118	<i>Editorial</i>	142
<i>Clinical Data</i>	124	<i>Current Literature</i>	144
<i>Nutrition</i>	140	<i>The News</i>	150

AVMA Report, ad page 8; Coming Meetings, ad page 26

(Contents continued on ad pages 2 and 4)

Volume CXIX AUGUST 1951 Number 893

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CONTENTS

(Continued from Cover)

SURGERY AND OBSTETRICS

Agglutinin Formation in Brucellar Infection of the Genitals of the Bull	123
Lion with Amputated Tail	123
AVMA Activities	123
Horse with an Auxiliary Windpipe	123

CLINICAL DATA

Gramoderm—Antibiotic for Skin Diseases	124
Coccidia and Hookworms as Predisposing Factors in Virus Diseases	124
Ring Test vs. Blood Test	124
Neoplasms in Small Animals	124
Transmissible Gastroenteritis in Swine	137
A New Disease of Ducks Reported	139
Technique of Examining Sperm	139
Pan American Foot-and-Mouth Disease Center Established	139
This Is Civil Defense	139

NUTRITION

Feeding Thyroprotein to Dairy Cows	141
Aphosphorosis in Cows	141

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CONTENTS-Continued

EDITORIAL

Veterinarians and OPS Ceiling Prices	143
--	-----

CURRENT LITERATURE

ABSTRACTS

Pathological Alterations of the Bovine Oviduct, 144; Brucellosis in Slaughtered Hogs, 144; Tick Paralysis in Cattle in Montana, 144; Aureomycin Therapy in Veterinary Medicine, 145; Inhibitory Effect of Cortisone on Liver Degeneration in the Rat, 145; The Resistance of DDT-Resistant *Drosophila* to Other Insecticides, 145; Measurement of Arterial and Venous Pressure in Cattle, 146; Effect of Iodine Compounds on Horse Strongyle Larvae, 146; Fowl Typhoid in Turkeys, 146; Rhinitis in Swine, 146; Fertility of Boars, 146; Another Vaccine Against Newcastle Disease, 147; Multiple Tumors in a Bovine Uterus, 147; The Two Tests for Brucellosis, 147; Vaccination Trials Against Newcastle Disease, 147; Canine Leptospirosis in Japan, 147.

BOOKS AND REPORTS

Chemical and Medical Facts About Mineral Oil, 148; Surgical Principles and Techniques, 148; Bacteriology, 148; Observations on European Animal Disease Problems, 148; New Ways to Better Meetings, 149; Infectious Diseases of Domestic Animals, 149.

THE NEWS

Last Minute Notes on the Milwaukee Convention	150
Reunion of Chicago Veterinary College, Class of 1910	151
Chairmen, State Ethics Committees To Meet	151
Convention Civil Defense and Military Conference Program Enlarged	151
Secretaries, Editors, and Public Relations Workers Will Meet in Milwaukee	151
Women and Children Urged To Participate in Convention Program	151
Lapinized Hog Cholera Vaccine To Be Discussed at Milwaukee Convention	152
First Executive Committee of House of Representatives Elected	152
Proposed Amendments to Constitution and Administrative By-Laws	152
Student Chapter Activities	155
Women's Auxiliary	156
Applications	156
Commencements	175
Among the States and Provinces	177
Foreign News	180
Veterinary Military Service	180
Deaths	180

MISCELLANEOUS

The Fate of Amino Acids, 107; Ask More Federal Aid for Sheep Scabies Work, 117; Weak Calves, 117.

Coming Meetings ad page 26



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$$\frac{S}{S-x} = KC$$

$$\frac{S}{S-x} = Ax + KC$$

$$\frac{a-x}{v} S = K_e \frac{A(S-x)}{S} x$$

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AVMA ☆ Report

Veterinary Medical Activities

◆ Members of the Executive Board will convene at Association headquarters in Chicago on August 15-17, 1951, for their annual meeting and will then proceed to Milwaukee for the session of the House of Representatives, which will be held on Saturday, August 18, prior to the opening of the 88th Annual Convention on Monday, August 20.

★ ★ ★
◆ The seven-man executive committee of the House of Representatives is now being selected (*see* p. 152). The chairman of this newly authorized committee will sit in as an observer on meetings of the Executive Board in August.

★ ★ ★
◆ Executive Secretary Hardenbergh attended the first meeting of the newly appointed National Committee on Eradication of Hog Cholera, which was held at Purdue University on June 18-19, 1951. Chairman of the committee, which is an outgrowth of a resolution referred to the United States Livestock Sanitary Association last year by the AVMA, is Dr. L. M. Hutchings, head of the Department of Veterinary Science at Purdue.

★ ★ ★
◆ Interest in lapinized hog cholera vaccine, and the expected early announcement of its availability, has resulted in the addition of a paper on the subject to the Milwaukee program (*see* page 152 for details).

★ ★ ★
◆ Dr. C. R. Donham, editor *ad interim*, spent July 12, 1951, at the AVMA office in conferences with the editorial staff.

★ ★ ★
◆ Veterinarians were threatened with inclusion in price stabilization measures until the AVMA office and Executive Board members registered protests with OPS during June (*see* p. 143).

★ ★ ★
◆ The JOURNAL plans to publish soon a series of articles on "combination" hospitals for large and small animals. These will comprise plans of hospitals in all parts of the country, but particularly in the West, where the combined large and small animal hospitals are becoming so popular (*see* p. 142 in this issue).

★ ★ ★
◆ Hotel reservations in Milwaukee for the 88th Annual AVMA Convention indicate a new high in total registration. Although advance registrations are at a new high, there are still rooms available, but reservations must be made in advance of the meeting.

★ ★ ★
◆ The new AVMA exhibit on animal tuberculosis attracted real interest at the A.M.A. convention in Atlantic City in June. Reasons: Discussions which had taken place on BCG vaccination in human beings, and a remark by Dr. J. Arthur Myers, outspoken champion of the veterinarians' work in eradicating bovine tuberculosis, to the effect that "veterinarians are provoked with physicians because their human TB patients are now giving the infection to cows!"

★ ★ ★
◆ Drs. J. R. Porteus, federal veterinarian-in-charge for New Jersey; R. A. Hendershott, state veterinarian of that state and his assistant, J. W. Crouse; and H. C. King and W. L. Mackey of the federal and state staffs, respectively, assisted Executive Secretary J. G. Hardenbergh at the animal tuberculosis exhibit at the A.M.A. convention.

★ ★ ★
◆ The National Farm and Home Hour program (NBC) will again feature the AVMA Convention on August 25, 1951. Biological warfare defense and meeting highlights will be discussed. This is the third consecutive year that the AVMA Convention has been featured on this outstanding farm program.

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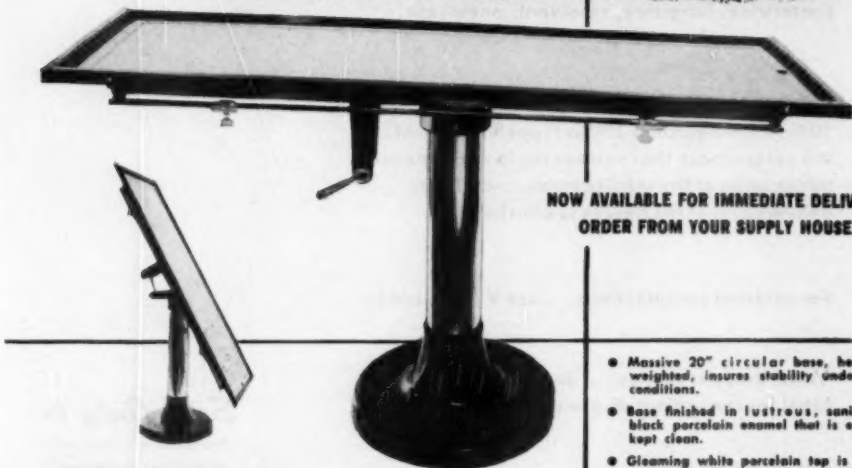
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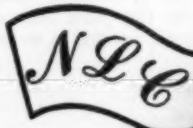
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¹ Cramley, C. W., and Hagely, J. M.: Vet. Med. 41:217 (June) 1951.

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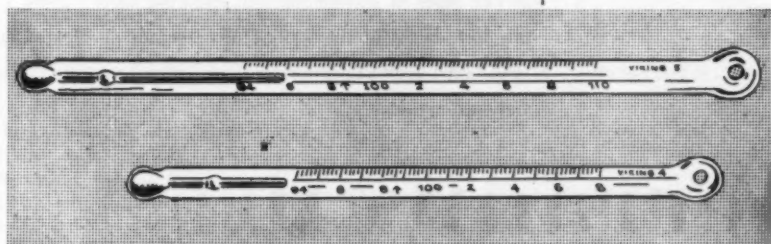
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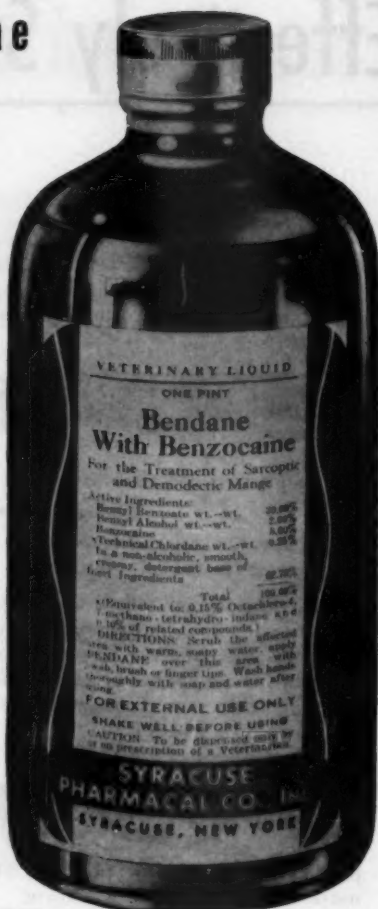
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Genetic, Embryologic, and Neonatal Problems Related to Ionizing Radiations of Interest to Veterinarians

LIEUTENANT COLONEL JOHN H. RUST, V.C., U. S. ARMY

CONCERNING ionizing radiations, a most interesting problem to veterinarians and to livestock breeders is that of the genetic and embryologic and neonatal alterations engendered. Actually, it is of little economic importance in veterinary medicine, because of the relatively infrequent use of whole body or genital irradiation in therapy or diagnosis. In the event of atomic disaster, consideration must be given to the possible damage of the individual or to the species. At this time then, the only interest this subject can have is a speculative one.

In the case of man, inbreeding is not commonly practiced or condoned. Many barriers exist to prevent marriage of close relatives. But in practical animal genetics, close inbreeding is frequently practiced to establish desired heritable traits. Such practice is not without its unexpected and undesirable results. The worst that can happen is the exposure of latent unwanted characteristics which might be delayed in making their appearance if close inbreeding were not permitted. The best is an improvement or intensification of desirable attributes. Since radiation of the germinal cells produces heritable defects, it can become a matter of considerable importance to all who are concerned with livestock breeding.

A casual study of the problem might

lead one to believe that farm animals, being isolated in most instances from urban centers, would escape an atomic disaster. No doubt they would escape a great portion of the immediate radiation effects, but they would still be subject to some radiation from consuming the "fall out" fission products upon food or pasture at a distance from the blast center as well as streams traversing those bombed areas from which the animals may secure their drinking water. It is quite possible that cattle pastured near strategic targets might be subjected to either gamma ray or neutron flux. Fission products have been found several miles away from the epicenter of an atomic explosion, presumably having fallen as dust or rain, and have produced a noticeable skin damage to the cattle pastured within this area. Whether there were any genetic or embryologic changes is not important for the moment, but it is known that the animals so exposed had a patchy loss of hair color. It is conceivable, then, that given sufficient concentration of ionizing radiations, genetic, embryologic, and neonatal problems could arise from the consumption of radioactive elements.

Irradiation of the gonads is discussed more fully in another section.¹ The effects are mostly (1) neoplastic stimulation; (2) fertility suppression; (3) germ cell or heritable changes.

For the clinical veterinarian, neoplasia is not of unusual importance. Therefore, it is only to point out the changes that may be seen that they are discussed at all. Furth and Furth² report 15 times more ovarian tumors in mice irradiated with roentgen

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²From the Toxicity Laboratory, University of Chicago, Chicago 37, Ill.

This is the last of a series of five articles on atomic energy by Colonel Rust.

rays (200-400 r) than in the mouse controls. The testes are not mentioned by these authors. The literature is unusually free of reports of neoplasia of the male gonad following radiation. This would seem to indicate that this organ is refractive to the carcinogenic effect of ionizing radiations or that more work should be done in this particular field.

For at least two reasons, larger mammals have not been used to any extent in the study of radiation effects upon fertility: first, because of the excessive cost of the animal; and second, because of the time between generations. Therefore, much of the available information is on Amphibia, fruit flies, and small laboratory animals. Such results, for the most part, can be extrapolated to larger animals. Bohn³ was an early observer of radium emanation effects on echinodermata eggs and embryos. He noticed that moderate doses to eggs retarded embryonic growth, large doses produced monsters, and heavy doses resulted in death of the embryo. If irradiated after fertilization but prior to gastrulation, development stopped; but when irradiation was applied during gastrulation, development stopped or monsters were produced. He saw that radiation was more harmful to the sperm than to the egg. Later, others confirmed this opinion.

Bardeen⁴ worked with toads and reported that, when spermatozoa were irradiated, there was a reduced motility and fertility. Ova fertilized with these irradiated spermatozoa rarely develop past the gastrular stage.

Still later, the Hertwigs^{5,6} working with amphibians and using a time measurement of dosage only, noticed that, if radiation of sperm occurred before fertilization, fewer abnormalities were produced than if irradiated after fertilization. From these observations, they postulated that, when ova were fertilized with heavily irradiated sperm, the abnormalities produced were less than if light doses were used. They reasoned that light doses injured the chromosome, hindering development, and heavy doses killed the zygote. They thought this occurred with the ova also.

Rugh⁷ exposed the sperm of leopard frogs with 15,000 to 50,000 r at the rate of 400 r per minute. There was no apparent alteration in the sperm motility or its capacity

to fertilize ovum. So far as could be seen, no alteration of the cleavage pattern could be detected, though there might have been some delay in cleavage. The first abnormality noticed occurred during gastrulation. This consisted of delayed gastrulation, exogastroly, hemiembryos, and delayed neurulation. The greatest increase in abnormalities occurred at 1,000 r exposures and the highest percentage at 10,000 r. Where the embryos reached the hatching stage, however, there was no evidence of failure to complete the hatching process. In general, as the dosage increased, the hatching number decreased, except that at the 10,000 r level no embryos hatched. Abnormal embryos increased with the dosage.

Kosin⁸ used chickens (Barred Rock irradiated males crossed with normal single comb White Leghorn hens) with doses ranging from 231 to 36,800 r at 924 r per minute; he irradiated sperm *in vitro*. For the first ten days after irradiation, sperm longevity was normal, thereafter it was somewhat reduced. Very high doses resulted in a decline in motility, with extreme doses producing morphologic changes. When females were mated with cocks having irradiated sperm, most of the resulting embryos died within the first ten days. If they survived past four or five days, the chance of hatching was good. He noticed that doses as low as 924 r would decrease the number of eggs that hatched.

In order to evaluate the effect of irradiation upon mammalian embryos, Margaret Henson's⁹ work is of interest. Male rats were irradiated with 100, 500, 1,000, and 3,000 r and mated with normal females. The litter survival value of progeny of males irradiated with 100 r was half that of the normal controls. No abnormalities were noted. However, in a lapse of four weeks between irradiation and mating, the litters were normal—indicating a recovery from the radiation effect. If the males irradiated with 500 r were mated with normal females, their litters were also half of the normal controls with no abnormalities, but after three weeks, the irradiated males were sterile. In the 1,000 r group, the results were similar except that the litter survival rate was one third that of the controls, and when exposed to 3,000 r, no litters were obtained. Sperm were motile for only two days. She saw no reduction in copulatory ability. Using rabbit sperm, which were

collected and irradiated *in vitro* with doses of 50 r to 100,000 r, and then used to fertilize normal ova, Amoroso and Parkes¹⁰ made many observations. With sperm exposed to 50 to 100 r, they saw no effects; the young were normal and pregnancy was terminated after 28 to 31 days. With 250 r and above, ova showed arrested development with a decrease in the normal trophoblasts (implant stage). At 1,000 r level, there were only 2 per cent normal trophoblasts; at 10,000 r, none were seen. Cleavage would still commence in the ova fertilized with sperm irradiated at 100,000 r. These workers could see no difference in a given dose when intensity or duration was varied.

In rabbits, the spermatozoa, which normally enter the egg within three hours, were delayed to six hours at the level of 10,000 r and up to ten hours in larger doses. It is rare that more than 1 sperm enters an egg; however, when spermatozoa were irradiated with 1,000 to 50,000 r, any number might enter an egg. In doses of 10,000 r and below, many of the spermatozoa would contribute a pro-nucleus and participate in the cleavage with ill effects, needless to say. Activation with second polar body formation occurred at all dose levels if penetration took place. Union of the zygotes was slowed down after a dose rate of 1,000 r was reached. Haploid ova were found twice at the 1,000 r level.

There seemed to be no reduction in the number of pregnancies in doses of 50 to 100 r; there were smaller litter sizes in doses of 250 to 500 r, and no litters at 1,000 r. Histologic examination indicated that no embryos at the last rate survived more than nine days. The effect upon the litters when sperm are irradiated, as done by Amoroso and Parkes, may have an important bearing upon the problem of livestock breeders if these effects can be extrapolated to farm animals. A summary of these effects follows:

1) Five females were impregnated with sperm irradiated at 250 r. They produced three litters all of which died within twenty-four hours.

2) Two females treated in the same manner produced 6 young which lived for one year or more.

a) Three males from these litters were bred to normal females and produced normal young.

b) Two females of these litters failed to

produce young when mated with normal males.

c) One female of these litters produced normal litters under all circumstances.

Admittedly, such a small sample is subject to many errors, but such findings as are reported must be viewed with interest.

The work of Snell¹¹ indicated a reduced litter size in irradiated mice which seemed to be transmitted to subsequent generations even though there seemed to be no increase in nonviable or monstrous young.

Henshaw *et al.*¹²⁻²² have written a series of papers in which they describe their work with *arbacia* ova and the effects of radiation upon their cleavage. They noticed that there was a delay in cleavage which was a function of the dosage given. If there was elapsed time between radiation and fertilization, a measurable recovery was noted. They calculated that, for an equal effect upon the newly fertilized ova, it was necessary to administer twice the roentgens, and that the dosage was cumulative if divided.

When they worked with egg nuclear fragments, they saw that cleavage delay was due to nuclear damage and not to the cytoplasm. This is in accord with Lea²³ who arrived at this conclusion by observations and mathematic calculations of considerable complexity. Henshaw *et al.* saw that the cleavage delay occurred at prophase, while metaphase, anaphase, and telophase were only mildly disturbed. This, they thought, indicated damage greatest to the chromosomes in prophase. The interphase or resting cell was damaged hardly at all. This, too, agrees with other observers who came to the same conclusion by other methods of observation.

Wilbur and Recknagel²⁴ found that an observed change in the viscosity of *arbacia* eggs had no effect upon the delay of the cleavage but suggested an altered enzyme system. This opens up large areas for speculative thought inasmuch as these enzymes, if developed within the nucleus, may be identical with the evocators that are thought to play such a large part in directing embryologic changes and have been considered by some²⁵ to be a factor of neoplasia.

Bailey and Bagg²⁶ after reviewing the literature on roentgen ray irradiation in man and animals, conclude that it is questionable to use radiation upon the ripe

ovarian follicles. They felt that irradiation of the ovum during early pregnancy would cause grave changes in any viable embryo. This might hinder the growth and development of the child in later life if irradiated during late pregnancy.

A simple and not often noticed phenomenon has been described by de Nobile and Lams.²⁷ When pregnant rats and guinea pigs were exposed to roentgen rays of about 400 r, death and resorption of the embryo was recorded. If this hazard was surmounted, subsequently the fetus was lost by abortion. These findings were augmented by the work of others such as Heim²⁸ who irradiated fertile chicken eggs and embryos. It was noticed that in all cases development was retarded. Typically, the injuries that developed were to the eye or as asymmetrical brain growth. The earlier the period of development, the greater the injury.

Of course, effects of lesser doses of ionizing radiations are interesting when young are born alive. Murphy and de Renyi,²⁹ in their observations on pregnant albino rats, have supplied additional facts. Of 34 litters exposed, 5 litters had 1 or more of the young exhibiting clubbed feet or absence of the toes. The proportion of defective young appeared to vary directly with the exposure.

Further information was supplied by Goldstein³⁰ in his paper on microcephaly with ophthalmic defects in children. He studied 19 cases in which the common factor was radiation of the pelvic zone during pregnancy. All were radiated during the fourth or fifth month of pregnancy, and these children had common ophthalmic alterations that are not often seen in the non-radiogenic microcephaly.

Apparently, Murphy's work²⁹ with rats stimulated him to collect material from clinical sources. His report on 625 pregnancies³¹ in women subjected to irradiation seems to furnish definitive proof of the damage that may occur to the developing embryo or fetus.

Actually, this all can be carried to the neonatal development. Nerve cells are normally quite resistant to x-rays in the adult animal. However, Lambertine³² observed that the neurofibrillar reticulum of puppies was sensitive to roentgen rays in contrast to the insensitivity in the adult dog.

This all can doubtless be related to the activity of the growth of the cell. If it is active in growth, or needs to be active later in its life, irradiation is measurably harmful. If not active in growth, or if resting, it will not show the effects of radiation. This can be shown in the studies of Turner and Gomez.³³ In their work, they found that moderately high levels of irradiation would prevent the rudimentary mammary gland from responding to the stimulation of pregnancy or suitable hormones.

Another interesting possibility of remote control over the reproductive cycle was found by Clark and Bump³⁴ who irradiated the head region of Ring-Necked pheasants and were able to decrease egg production, length of laying period, and possibly the viability of the eggs. They offered no explanation for their findings.

In addition to the effects of radiation upon the gonads, the embryo, and the newborn, there remains the problem of defects that are carried by the young which may be transmitted from generation to generation—in other words, gene mutations. Most of these viable and troublesome mutations are recessive and lethal. The dominant type are not long-lasting, since their lethal effect is upon the first generation. There has been much controversy over the importance to the human population of mutation by ionizing radiations. Muller³⁵ believes that they are of great importance and that all radiations are hazardous, whereas Evans³⁶ is a proponent of the thought that there is not a great danger of an increase in hereditary abnormalities even if a small fraction of the population receives daily radiation doses up to 0.1 r a day. Those interested would do well to study these papers.

From the foregoing evidence, it is seen that there are possibilities that ionizing radiations can become a problem to the practicing veterinarian. It is unlikely that he will be able to give definitive answers to his clientele, but if he recognizes that problems are engendered by ionizing radiation, he has made a great start in understanding them.

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Kansas City Flood Bulletin

All of the major veterinary biological and pharmaceutical houses in the Kansas City, Kansas, and Missouri "Lowlands" suffered extensive losses in the recent flood. According to a report from Dr. K. M. Curtis, secretary of the Kansas City Veterinary Medical Association, no estimate of the total loss to these firms could be made at journal press time. However, Dr. Curtis reported that all firms will be back in operation just as soon as possible and that they will fill all the orders possible from stocks salvaged.

Tuberculosis of Animals*

Opportunity for transmission of tuberculous infections from animals to man and from man to animals is afforded by the more or less close contact between man and the various species of animals that are susceptible to this disease. The farmer, the caretaker, the veterinarian, the butcher, the dairyman and, finally, the housewife and consumer frequently are in contact with animals or animal products which are potential sources of tuberculous infections. Pet animals, such as cats and dogs and even monkeys and parrots which are susceptible to tuberculosis, often are permitted to live in rooms shared by their masters. In addition, close contact with pet animals is occasioned during play.

Tuberculosis is one of the infections common to many species of animals, including man. Adequate control of this disease and eventual elimination of it from one species is dependent on its control and elimination in all species which harbor tubercle bacilli transmissible to other than natural hosts.

The varieties of tubercle bacilli designated as *Mycobacterium tuberculosis* var. *hominis*, *Mycobacterium tuberculosis* var. *bovis*, and *Mycobacterium avium*, commonly called respectively "human," "bovine," and "avian" tubercle bacilli are not so host-specific as their names would imply. Although the natural hosts of each are indicated by the common name, infection in heterologous hosts is not uncommon. It should be emphasized that animals may harbor not only bovine and avian tubercle bacilli but human tubercle bacilli as well, and that tuberculous human beings may be as dangerous to animals as to other human beings.

TUBERCULOSIS IN CATTLE

Cattle are the natural hosts of the bovine tubercle bacillus. This microorganism is capable of producing in human beings severe disabling disease that may be fatal. Raw or improperly pasteurized milk from tuberculous cattle is the most important factor in the transmission of

bovine tuberculosis to human beings. This presents a particular hazard to children. In addition to the ingestion of milk and other dairy products from tuberculous cattle, infection may be acquired by inhalation of air from infected cattle or through abrasions on the skin of butchers and meat inspectors and others who handle tissues of tuberculous animals. Bovine tubercle bacilli may be transmitted to swine by the practice of feeding unpasteurized skim milk which may come from tuberculous cattle. Such swine may thus be a source of infection to human beings. Dogs and cats also are susceptible to infection by the bovine tubercle bacillus. Pets harboring this microorganism may be a source of infection for cattle as well as being dangerous to human beings.

It has been shown repeatedly that cattle may become infected by exposure to tuberculous human beings. The disease in cattle caused by the human tubercle bacillus usually is limited in extent and does not become progressively disseminated. However, such cattle react to the tuberculin test and are, therefore, subject to slaughter. Furthermore, cattle infected with the human tubercle bacillus obviously are potentially hazardous to human beings. It has also been demonstrated that human beings infected with bovine tubercle bacilli may transmit the infection to cattle. There is a record of an individual with pulmonary tuberculosis due to bovine tubercle bacilli, who was the source of infection in four different herds of cattle.

A remarkable achievement of the veterinary medical profession, with the cooperation of enlightened physicians in the United States, is the reduction of tuberculosis in the cattle population. This has been accomplished by application of the tuberculin test to cattle and the removal by slaughter of all reactors. An animal that reacts positively to the tuberculin test is properly considered as a dangerous individual. In the United States since 1917, when the "test and slaughter" program of bovine tuberculosis eradication was started, the prevalence of the disease among cattle has steadily decreased from approximately 5 per cent to the present incidence of less than 0.19 per cent.

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*Reprints of this article are distributed from the Tuberculosis exhibit.



The exhibit on tuberculosis in animals shown at the American Medical Association convention in Atlantic City, June 11-15, 1951. The exhibit was prepared by the Scientific Exhibits Committee of the AVMA.

This low rate of infection will be maintained only by constant vigilance and a continued program of periodic testing of all cattle for tuberculosis. Pasteurization of milk is important, but the basic objective of any program for the protection of human beings against bovine tuberculosis is early detection of the disease and elimination of the infected animal.

AVIAN TUBERCULOSIS

This is a very widespread disease in the agricultural areas of the north central portion of the United States. In several states, more than 50 per cent of farm chicken flocks are tuberculous. This disease causes serious loss to the poultry industry because of the debility of the affected birds and the lowered production of eggs. In addition, it causes monetary loss because the infection is readily transmitted to other domestic fowl and to swine.

Among swine, the economic loss is particularly important. A large number of swine and parts of swine each year are condemned as unfit for human consumption because of the presence of grossly visible tuberculous lesions. The majority of these infections are caused by the avian tubercle bacillus. Cattle also are susceptible to infection with avian tubercle bacilli. As a rule, the lesions are limited in extent, but infected cattle may react to the tuberculin test as a result of sensitization by the avian type of infection. It has been found also that infection with the avian tubercle bacillus in pregnant cattle may be responsible for abortion.

Avian tuberculosis is a threat to human health. The small number of cases of adequately proved infection with the avian tubercle bacillus in man indicates that this microorganism has a low potential of pathogenicity for human beings. However, there is ample evidence that this microorganism can produce definite disease in the human being. The factor or factors which permit the avian tubercle bacillus to multiply and produce morbid changes in the usually resistant human host are not known. However, as long as infection with the avian tubercle bacillus is so common among chickens and among swine, the possibility of the transmission to man should not be overlooked.

TUBERCULOSIS IN PETS

Dogs similarly are susceptible to the bovine and the human tubercle bacillus. Since there is more opportunity for dogs to acquire infection from man than from cattle, it is probable that most of the canine infections are due to the human tubercle bacillus. The disease in dogs frequently attacks the lungs. The tuberculous dog is especially dangerous to children who fondle and play with their pets. Obviously, tuberculous dogs should be destroyed. Tuberculosis among cats is rare in the United States because of the marked resistance which these animals have to infection with the human tubercle bacillus. Cats are, however, susceptible to infection by the bovine strain. In countries in which bovine tuberculosis has not been so vigorously controlled as in the United

States, tuberculosis in cats should be considered a serious hazard to human health.

Monkeys are readily infected by both the human and the bovine tubercle bacilli. In the United States, it is probable that most of the tuberculous disease in monkeys is of human origin. This disease is a constant and real problem to zoological gardens and to laboratories which use monkeys as experimental animals. In these animals, the disease takes a rapidly progressive course. Lesions in the lungs may become large and cavitate. Tuberculous monkeys disseminate the disease to other monkeys and to man by coughing, which they do freely. Tuberculosis is probably the most common serious infection in monkeys. It should be suspected in every colony. In zoological gardens, the public must be protected against tuberculous infection that may be acquired from monkeys and, of equal importance, monkeys must be protected from acquiring the disease from human beings. It should also be said that parrots are susceptible to infection by human tubercle bacilli and may be sources of infection to man.

SUMMARY

Tuberculosis among animals is a source of infection that can and must be eliminated. The danger of bovine tuberculosis in the United States has been greatly reduced by a vigorous and unrelenting program of testing all cattle and removing the reactors for slaughter. In spite of the great advances in control, there is a constant potential hazard as long as only a few infected animals exist. The present situation will be maintained and improved only by continued efforts to find and eliminate tuberculous cattle. Avian tuberculosis is widespread. Its importance derives from the economic loss it causes in infected chickens, swine, and cattle. There is growing evidence that human beings are not entirely resistant to infection with avian tubercle bacilli. Other animals such as dogs, cats, and monkeys also must be included in the group of animals that may serve as sources of tuberculous infection for man. The bibliography may be consulted for detailed information.

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Infectious Equine Encephalomyelitis in the United States in 1950

(Abstracted from a report dated May 31, 1951, by Dr. B. T. Simms, chief, United States Bureau of Animal Industry.)

Infectious equine encephalomyelitis was reported from 33 states during 1950, with a total of 1,023 recorded cases. This is the lowest number of cases that has been reported for any year since the U. S. Bureau of Animal Industry began an annual survey of the disease.

The general pattern remained about the same. The average mortality of 41 per cent is considerably lower than the 60 per cent for 1949. The peak months of occurrence throughout the United States were July, August, September, and October. As in previous years, Hawaii reported that no cases of the disease occurred in 1950. No cases were reported from Puerto Rico.

About 89,000 animals were vaccinated in 1950, this figure being estimated on the basis of production and other records. Approximately 29,600 vaccinations were reported specifically to the BAI. About only 2.4 per cent of the vaccinations were accomplished before the disease became epizootic. Five animals were reported to have contracted the disease and died from it despite vaccination.

During 1950, a brain specimen from one horse (Alabama) and one sample of human serum were received by the BAI for laboratory diagnosis. Both were negative.

(See table on opposite page.)

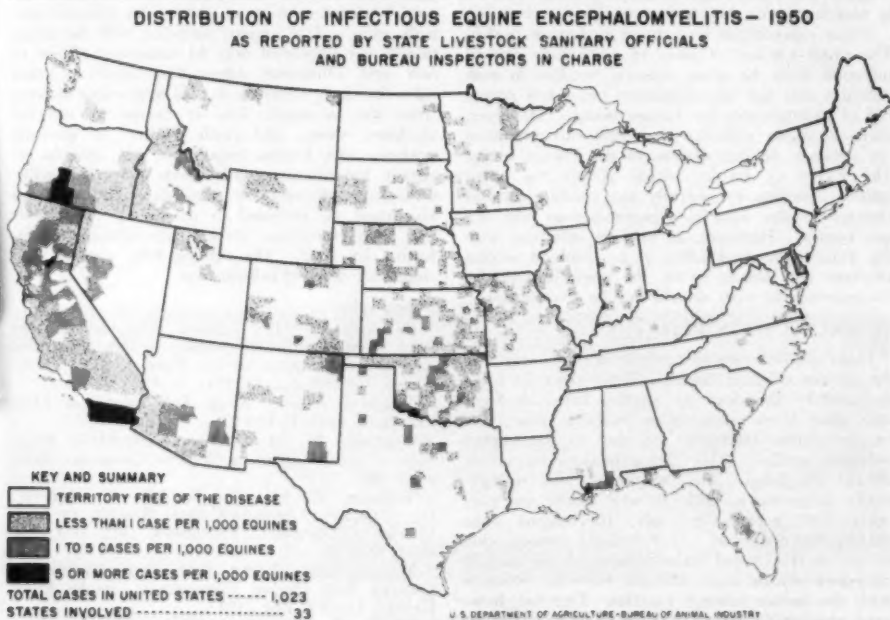


Fig. 1.—Distribution and degree of incidence of infectious equine encephalomyelitis, 1950.

TABLE 1—Infectious Equine Encephalomyelitis. Summary of Reports on Incidence and Mortality by States, 1950

State and division	Horses and mules in affected areas	Animals affected	Cases per 1,000 horses and mules	Total deaths	Deaths per 100 affected animals	Month of report of— First case	Last case
Maine	---	---	---	---	---	---	---
New Hampshire	---	0	---	0	---	---	---
Vermont	---	0	---	0	---	---	---
Massachusetts	1,378	1	0.7	1	100	October	October
Rhode Island	---	0	---	0	---	---	---
Connecticut	---	0	---	0	---	---	---
New England	<u>1,378</u>	<u>1</u>	<u>0.7</u>	<u>1</u>	<u>100</u>	<u>October</u>	<u>October</u>
New York	---	0	---	0	---	---	---
New Jersey	215	1	4.7	1	100	January	January
Pennsylvania	---	0	---	0	---	---	---
Middle Atlantic	<u>215</u>	<u>1</u>	<u>4.7</u>	<u>1</u>	<u>100</u>	<u>January</u>	<u>January</u>
Ohio	---	0	---	0	---	---	---
Indiana	52,650	30	0.6	15	45	January	December
Illinois	52,970	14	0.3	6	45	January	October
Michigan	---	0	---	0	---	---	---
Wisconsin	27,550	3	0.1	0	0	June	September
East North Central	<u>132,970</u>	<u>47</u>	<u>0.4</u>	<u>19</u>	<u>40</u>	<u>January</u>	<u>December</u>
Minnesota	130,038	29	0.2	12	41	May	September
Iowa	26,364	5	0.2	1	20	July	September
Missouri	258,084	82	0.3	40	49	April	November
North Dakota	9,230	2	0.2	2	100	September	September
South Dakota	76,007	26	0.3	13	50	June	December
Nebraska	156,539	39	0.2	16	41	June	November
Kansas	172,601	23	0.5	26	28	February	November
West North Central	<u>829,605</u>	<u>276</u>	<u>0.3</u>	<u>110</u>	<u>40</u>	<u>April</u>	<u>December</u>
Delaware	12,777	3	0.2	2	67	July	September
Maryland	---	---	---	---	---	---	---
Virginia	10,449	16	1.5	15	81	August	October
West Virginia	---	0	---	0	---	---	---
North Carolina	13,612	7	0.5	7	100	April	September
South Carolina	2,143	3	1.4	3	100	June	November
Georgia	---	---	---	---	---	---	---
Florida	12,916	15	1.2	15	93	January	September
South Atlantic	<u>51,097</u>	<u>44</u>	<u>0.8</u>	<u>37</u>	<u>84</u>	<u>January</u>	<u>November</u>
Kentucky	7,241	5	0.7	5	60	July	September
Tennessee	---	0	---	0	---	---	---
Alabama	2,817	7	2.5	7	100	June	June
Mississippi	11,683	25	2.1	22	88	July	October
East South Central	<u>21,741</u>	<u>37</u>	<u>1.7</u>	<u>22</u>	<u>88</u>	<u>June</u>	<u>October</u>
Arkansas	---	0	---	0	---	---	---
Louisiana	---	0	---	0	---	---	---
Oklahoma	249,625	152	0.6	56	37	January	November
Texas	68,246	45	0.9	25	56	April	October
West South Central	<u>297,871</u>	<u>197</u>	<u>0.7</u>	<u>81</u>	<u>41</u>	<u>January</u>	<u>November</u>
Montana	19,193	10	0.5	4	40	June	September
Idaho	71,559	36	0.5	10	28	March	October
Wyoming	26,380	9	0.3	5	56	August	October
Colorado	56,506	28	0.5	10	38	June	October
New Mexico	21,622	14	0.6	7	50	January	September
Arizona	27,526	34	1.2	12	35	May	October
Utah	19,723	9	0.5	2	22	April	September
Nevada	5,484	8	1.5	1	13	August	September
Mountain	<u>248,192</u>	<u>146</u>	<u>0.6</u>	<u>51</u>	<u>35</u>	<u>January</u>	<u>October</u>
Washington	13,350	2	0.1	1	50	May	August
Oregon	46,551	72	1.5	18	25	June	September
California	125,123	200	1.6	66	33	May	October
Pacific	<u>184,024</u>	<u>274</u>	<u>1.5</u>	<u>85</u>	<u>31</u>	<u>May</u>	<u>October</u>
Total or Average	1,768,089	1,023	0.6	417	41	January	December

The Gaits of Horses

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WITH THE drop in the number of working horses, the study of the horse has held less interest for most veterinarians and received less attention in the schools. Although the practice of the average veterinarian is devoted mainly to the other domestic animals, he is occasionally called upon to examine a horse. A complete examination and the rendering of a diagnosis often involve a study of the gaits, and the experienced veterinarian gives the horseman a good impression of his professional skill. This paper will describe and discuss briefly the common gaits which the veterinarian should know.

The gaits of horses have been studied for at least two centuries by direct observation, electrically and pneumatically operated devices, and the slow-motion projected picture. Nevertheless, there remains much disagreement among the experts as to the actual rhythm and mechanics of the gaits, because the feet move at least twice as fast as the body. For example, when a horse travels 25 miles per hour, the legs travel at least 50 miles per hour.

Notation.—To provide a schematic form for study of the timing and order of the feet, the system known as the Notation of Marey was adopted. This system may be compared with musical notation in which the symbols represent time intervals. If the gait of a man walking were to be analyzed, the length of the symbol would represent the time that a foot was on the ground, and the space between symbols would represent the time the foot was in flight, or off the ground. The notation would look like this:

Left foot: ----- ----- -----
Right foot: ***** ***** *****

If this notation were placed on graph paper where each space represented a length of time, we would readily see the duration of each movement. To represent the notations of the horse, one merely adds two more symbols. The foot is on the ground during the "contact period" and is off the ground during the "flight period."

Definitions.—The term "gaits" is applied to the various means by which progression is usually accomplished by the movement of the members. Gaits may be classified as *natural* or *acquired*.

The walk, trot, and gallop are gaits natural to all horses, irrespective of breed or use. The slow gait, rack, and running walk are usually considered acquired or man-made gaits. The pace may be either natural or acquired. The gaits may be subdivided as *marched* or *leaped*. A *marched* gait is one in which at least one member is in contact with the ground throughout the complete stride; a *leaped* gait is one in which all the members are free of the ground (in flight) during some stage of the complete stride. The period in which all members are completely clear of the ground is called suspension.

Gaits may be further classified as *diagonal* or *lateral*. They are diagonal when the diagonal members, right fore and left hind, or left fore and right hind, strike the ground at the same time or in distinct succession, *i.e.*, the trot; lateral when lateral members strike the ground in unison or in distinct succession, *i.e.*, the pace.

Stride is the distance covered between successive imprints of the same member.

Step is the distance between successive imprints of the two fore feet or the two hind feet. It is usually equal to one-half of the stride, providing the horse is not lame or performing an acquired gait of asymmetrical development.

NATURAL GAITS

1) **The Walk.**—The natural walk is a slow, marched, four-beat gait. It invariably starts with one of the fore feet. For demonstrative purposes, we will assume the left fore leg is moved first. This is followed by the right hind leg. The next leg to move is the right fore, and lastly the left hind. There are eight distinct movements of the walk. These movements may be best conveyed by a system of notations:

0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0

The Marey notation is shown in figure 1. This shows that in the walk there are three limbs on

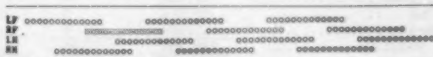


Fig. 1—The Marey notation.

the ground at any one time, followed by two, then by three, etc. The formula for this is 3-2-3-2-3-2-3-2. It will be observed that the three limbs followed by two is characteristic, the three limbs being any three, the two being any two, provided one is a fore and one is a hind limb.

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The hind foot of a good walker will always be placed down in advance of the impression left by the fore foot. In an average walker, the hind foot impression more or less covers the fore; in a horse that is a bad walker, or is tired, the hind foot impression is behind the fore.

Smith' has shown that the maximum height reached by a horse's foot is accomplished by the extensor muscles (chart 1).

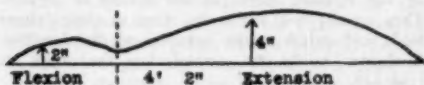


Chart 1—Curve showing that the maximum height reached by a horse's foot is accomplished by the extensor muscles.

The ordinary saddle horse has a stride of $5\frac{1}{2}$ ft. to 6 ft. and averages a little better than 4 miles per hour at the walk.

2) *The Trot*.—The trot is a natural gait in which the two diagonal feet are on the ground at the same time. This gives a two-point diagonal suspension and for this reason is a safe, sure-footed gait. As in the pace, the legs work in pairs, but instead of lateral pairs, the diagonal ones are synchronous. A fore and diagonal

hind leg thrust the body forward off the ground, and it is received by its fellows which repeat the movement. Howell's notation:

$$\frac{\text{---} \text{ o } \text{---}}{\text{ o }} \frac{\text{ o } \text{---}}{\text{ o }} = 0202$$

Marey's notation:

LF	-----	-----	-----
RF	*****	*****	
LH	-----	-----	-----
RH	*****	*****	*****

Some believe that there is a slight deviation in the Standardbred at a racing trot, the hind limb striking the ground a little before the diagonal fore.

The rate for the slow trot is 6 miles per hour; for the extended trot about 8 miles per hour. The world's record for trotting a mile is $1:55\frac{1}{4}$, established by Greyhound at Lexington, Ky., on Sept. 29, 1938.

It is easy for me to diagnose a slight lameness while riding at a trot, by posting on the different diagonals.

3) *The Gallop*.—The gallop is a fast, three-beat, diagonal, leaped gait in which the simultaneous beats of one diagonal (second beat) occur

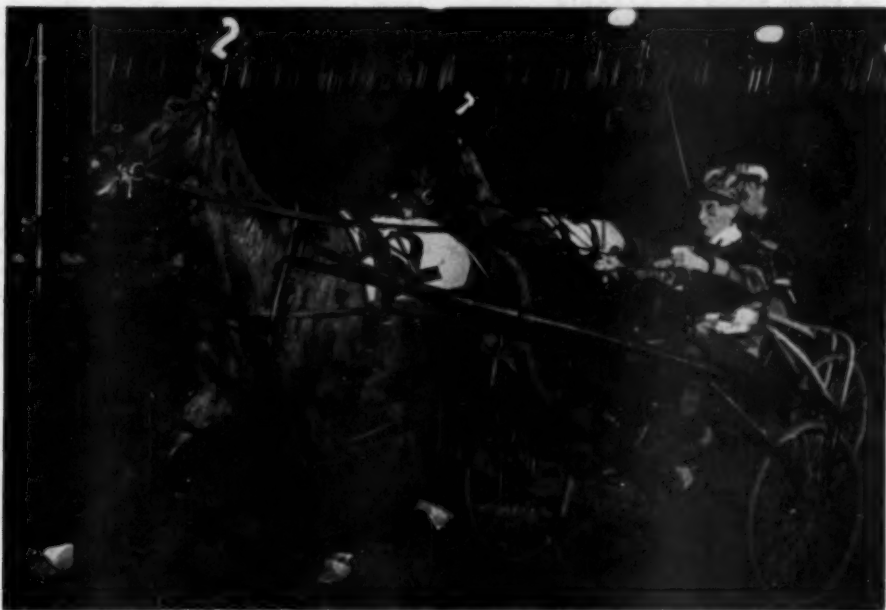


Fig. 2—Harness horse No. 2 is Susan W. Direct, a hopped pacer, owned by T. J. Murray and driven by A. Rodney at Saratoga Raceway, New York.

between two successive beats of the opposite diagonal, as shown by the Marey notation:

```
RF      - - - - -
LF      *****
RH      - - - - -
LH      *****
```

Man has regulated the speeds of the gallop to his needs or desires. As the animal is brought to the different speeds of the gallop, the center of gravity is shifted, necessitating a different footfall in order to obtain a balanced equilibrium.

The types of gallop are classified as the slow gallop (canter), ordinary (natural or hand) gallop, full gallop, and racing gallop or run. The Marey notation for the ordinary gallop is shown above. The footfall formula would be 1-3-2-3-1-0:

```
o   o   o   o   o   o
o   o   o   o   o   o
```

At this speed, about 16 to 18 miles per hour, there are three distinct beats: e.g., on the right lead, the left hind, the diagonal right hind, and left fore striking simultaneously, and the right fore.

If the gallop is slowed down to a collected canter (about 6 mi. per hour), the ordinary three beats are sometimes changed to four. Horses showing a great deal of action do a four-beat diagonal canter in which the hind leg of the diagonal strikes just before the fore leg. Here, the footfall formula is 1-2-3-2-3-2-1-0:

```
o   o   o   o   o   o   o   o
o   o   o   o   o   o   o   o
```

But if the horse shows just ordinary action, he may exhibit a lateral type four-beat canter by which the fore leg of the diagonal strikes just previous to the hind. Formula: 1-2-3-2-3-2-1-0.

```
o   o   o   o   o   o   o   o
o   o   o   o   o   o   o   o
```

Again, if the gait is increased to the extended gallop, or run, it takes on a four-beat gait differing still from the aforementioned gaits. This gait, like the canter of high action, has the hind member of the diagonal striking the ground before that of the fore member, the difference being that there is no three-point basis of support as in the slow canter. Formula: 1-2-1-2-1-2-1-0:

```
o   o   o   o   o   o   o   o
o   o   o   o   o   o   o   o
```

Thus, as in all cases when maximum speed is desired, the usual balance of the center of gravity is forsaken to obtain the speed.

To obtain a clear understanding of the gallop, it should be remembered that the body is always propelled forward off one of the fore limbs, and no matter which of the fore limbs leaves the ground last, it is always the diagonal hind limb

that strikes first in the "true" gallop. If this does not occur, the horse is said to be disunited and very rough for the rider. When the right fore limb leaves the ground last, the horse is said to be in the right lead. If a horse is traveling in a circle to his right, a centrifugal force is developed, and he should be in the right lead to steady his equilibrium by the foothold of the propelling member. The leads are often changed to equalize the work of the muscles and the fatiguing legs by the running horse in the course of a race. They usually will make the turns in their proper leads and switch to the opposite on the stretches. Coalton holds the record for the mile, at 1:34 1/5.

ACQUIRED GAITS

Slow Gait and Rack.—The slow gait and rack are the fourth and fifth gaits required of the five-gaited horse. Literature concerning these gaits confuses the reader a great deal, because of the overlapping and differences of nomenclature used by the various authors. The rack and slow gait have been called the pace, amble, broken amble, running walk, fox trot, broken trot, etc. For the sake of clarity, I shall use the nomenclature of the American Horse Show Association, viz: the five-gaited horse exhibits the walk, trot, canter, slow gait, and rack.

The slow gait is a marched, slow, broken pace, characterized by much animation. The lateral bipeds leave the ground at the same time, but because of the high-climbing action of the foreleg, the hind leg returns to the ground first. There is also a period in which the body is supported by a single hind leg. The basis of support of the slow gait is:

```
o   o   o   o   o   o   o   o   = 1-2-3-1-2-3
o   o   o   o   o   o   o   o   = (1)(2)(3)(4)(5)(6)
```

We assume that in (1) the right legs are in flexion, the left hind is on the ground, and the left fore is preparing to strike the ground; in (2) the left fore strikes the ground and the body is supported by both left legs; in (3) the right hind strikes the ground giving diagonal support; in (4) the left feet leave the ground simultaneously and once again the body is supported by only one hind leg (right); in (5) the right front strikes; and in (6), finally, the left hind comes to the ground, completing the cycle.

The rack is a faster and easier gait for the rider than the slow gait. The sequence in which the legs leave and strike the ground is, in essence, the same as in the walk. The rack, however, shows greater speed, higher action, and more animation. The footfall formula is:

```
1) o   o   o   o   o   o   o   o
o   o   o   o   o   o   o   o
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Because the rack is a man-made gait and is

largely controlled by the rider, it may deviate slightly in its footfall formula:

2) $\begin{array}{cccccccc} o & o & o & o & o & o & o & o \\ o & o & o & o & o & o & o & o \end{array}$

Actually, the only difference in these two types of rack is a period in which neither foreleg is on the ground; never are both forelegs on the ground at the same time.

One should be able to differentiate the slow gait and rack from the pace, for often improperly trained five-gaited horses have a tendency to pace.

The slow gait and rack are very difficult and hard for the horse to maintain, for it requires a great amount of energy to move all four limbs in a different manner at the same time with celerity. The antithesis of this is felt by the rider for it is a very smooth gait to which the rider sits.

The Running Walk.—The running walk has been described as a slow, marched trot, the beat of the hind limb slightly preceding that of its diagonal fore. The running walk is an accelerated walk showing a smooth, gliding, overstepping, four-cornered gait. The footfall formula is the same as the No. 1 type rack formula but, as stated previously, the running walk does not show the high, climbing action, suspension, and animation. This gait is performed by the Tennessee Walking Horse, or, as sometimes called, the "Plantation" horse. It is somewhat easier and faster than the walk.

The sequence of legs hitting the ground is the same for the walk, running walk, slow gait, and rack, as shown by the following footfall formula:

$\begin{array}{cc} o & o \\ o & o \end{array}$

They are all four-beat gaits.

The Pace.—The pace is a natural or acquired, leaped gait in which the members of each lateral biped rise and reach the ground simultaneously. Two beats only are heard in the complete stride of the pacing horse. This is shown by Howell's formula:

$\begin{array}{cc} o & o \\ o & o \end{array} = 2-0-2-0.$

The pace desirable in the Standardbred horse for racing purposes is undesirable as a gait in the saddle horse or roadster. For mere speed on a track or a very smooth road, the pace is a shade faster than the trot. The record of 1:55 was set by Billy Direct in August, 1938, at Lexington, Ky. Speed is the only asset of the pacer. The pace is a very rough gait for the rider and dangerous, for the basis of support is always lateral and the limbs are raised but little from the ground, often causing stumbling over rough terrain.

Pacing is a gait well suited to long-legged animals with the center of gravity high above the ground. The camel, a small proportion of dogs

(usually large), mostly setters, and occasional horses take to it naturally.

For various reasons, trotters are taught to pace. This is accomplished by the use of hoppers which will permit only the bipeds of the same side to move simultaneously. Hoppers are often the



Fig. 3.—This jumper is Sir Grayrock, working hunter champion, Connecticut Valley horse show, 1944, ridden by the author.

cause of accidents on raceways, for a horse that tires or bolts from the pace is likely to fall.

Pacers are prone to cross-firing. For this reason, they are shod with shorter toes in front, with an angle of approximately 52 degrees. The inside of each hind foot from the head of the quarter to the inside of the toe is lowest. The hind feet are shod with a half-swedge on the outside extending past the center of the toe medially. A trailer or heel calk on the outside is often useful.

The Jump.—The jump may be executed from the standstill, walk, trot, or, as in the usual case, the gallop. The gallop gives the animal the needed momentum and places the limbs in the most advantageous positions to clear the obstacle.

It is widely believed that no 2 horses jump alike, and the same horse under identical conditions will jump differently. Under ordinary circumstances, as the jump is approached, the horse during his last stride or two will slacken his speed, at which time he is measuring the obstacle, estimating the point of take-off, measuring his stride, and preparing for the proper placement of his feet. We will assume the horse is approaching the obstacle in the right lead. In the last couple of strides before the leap, there is a shortening of the stride of the right hind, causing the hind legs to be closely planted, which affords a more effective combined hind thrust. At the last stride

before the obstacle, the hind legs are carried well under the body. As the hind limbs are planted, the body is sprung upward and forward to some degree from the fore legs, which in this case is mostly the right. At this point, the muscles of the back and loins play an important part in raising the fore quarters. As the fore quarters are raised, the knees are bent. During this bending of the knees, the hind legs straighten or extend, propelling the horse into flight. The limb nearest the jump, as in this case, the right, is the final propelling member. It is now the turn of the hind legs to become flexed and the fore legs extend to make contact with the ground. This contact is made with a firm, straight left leg, followed by its fellow which is placed out in advance. Again, the fore legs spring off the ground as the hind legs pass under the body and contact the ground in advance of the imprints of the fore legs. The fore legs are then grounded as in the usual stride of the gallop.

A change of lead is often seen in jumping. When planting the hind limbs, the horse speeds its actions to assure that the hind feet are planted close together. If this action is speeded sufficiently, it will ground the right hind before the left hind and a change of leads with the hind legs has been accomplished. The fore legs will change before they land. This can be explained by the rotary motion set up when the propelling hind (left) foot transfers the center of gravity of the horse, causing him to land first on the diagonal fore foot (right), thereby changing to the left lead.

A BRIEF DESCRIPTION OF THE COMMON BREEDS OF HORSES

The Standardbred is either a trotter or pacer used primarily for harness racing. The breed originated in 1879, though an American Trotting Register had been started eight years previously. The chief ancestor of the breed was a horse named Hambletonian 10, who was descended from the English Thoroughbred Arabian strains. The Standardbred blood also carries the heritage of Morgan, Norfolk trotter, and pacing stock. The Standardbred horse resembles the Thoroughbred but is a little smaller, with an average height of 15.2 hands and weight of 900 to 1,000 lb. in racing condition. It is usually heavier-limbed and more robustly built, with longer body, shorter legs, and greater endurance than the Thoroughbred. It is a hardy, long-lived horse with plenty of courage and stamina.

The Thoroughbred originated in England at the time of the Stuart dynasty. It is believed to trace back to three sires—the Darley Arabian, the Godolphin Arabian,

and the Byerley Turk, imported into England between 1679 and 1730. Other animals entered into the breed, many of which were Barbs. The American Thoroughbred stems directly from this British source. The English Stud Book dates back to 1791; the American was first published in 1873.

The Thoroughbred has been selectively bred for speed and stamina. The height is about 16 hands, the weight 1,000 to 1,400 lb.

Many Thoroughbreds are used for hunting, jumping, and steeplechase racing, besides the regular flat races. Open jumpers also often have all or some Thoroughbred blood, although they may be any breed as long as they are able to jump. Both Thoroughbreds and hunters carry 4- or 5-in. manes on the right side of the neck. Thoroughbred jumpers usually have a mane, but are not required to, as hunters are.

The American Saddle Horse Register was established in 1891. This breed differs distinctly from any other. The Saddle Horse stands 14.2 hands or more. Its conformation is refined, with beautiful head, arched neck, sloping shoulders, and with fine texture throughout. The leg action is high and shows much animation. This breed may be divided into two basic types—the three-gaited and the five-gaited horse. The three-gaited is required to perform the walk, trot, and canter, while the five-gaited horse, in addition to the three aforementioned gaits, exhibits the slow gait and rack. The three-gaited horse is shown with clipped mane and roached tail, the five-gaited horse is shown with a full mane and tail. Both types have set tails.

The Tennessee Walking Horse is often called the Plantation Walking Horse, which indicates the special purpose for which it was produced—to carry the farmers and planters of the South at a comfortable pace over their plantations. Like the Morgan horse, this breed owes its foundation to one powerful, prepotent stallion known as "Black Allan," a Standardbred trotting stallion of mixed Hambletonian and Morgan ancestry. Foaled in 1886, he was taken to Tennessee as a colt, had a long life at stud, and produced numerous progeny, mainly from the Tennessee mares of mixed Thoroughbred, pacing, and saddle-horse strains. He was a sire of great prepotency, reproducing his type regularly and handing

down the blood with all its power in succeeding generations with constant uniformity.

The Walking Horse is much heavier and more powerful than the American Saddle Horse, and is generally larger, stouter, more robust, and less elegant than the latter. The head is large and plain, the neck rather short, the body and quarters solid and massive, with heavier limbs. It is temperate by disposition, intelligent, and well-mannered. The principal characteristic, from which the name "Walking Horse" derives, is the running walk, fast, easy, and enduring, the gait which is so much favored by the southern planters and farmers. Careful training is needed to develop the true running gait, which easily turns into the pace if pressed.

The Walking Horse has other paces: a good ordinary walk, a well-collected canter, and sometimes a good trot in harness. Members of this breed have long been widely used for agricultural work on farms, as well as for riding, and are undoubtedly first-class general-purpose animals, useful on the farm, between the shafts, or under the saddle.

As has been said, it is a larger horse than either the Saddle Horse or Morgan breeds. The weight runs to 1,000 lb. and over, and the height is seldom below 15.2 hands; many run to 16 hands, and 1,200 lb.

Shown with full mane and tail, the Walking Horse nods its head at each step, and can often be heard clicking its teeth.

The Morgan originated from a single horse named Justin Morgan (1793-1821) (West Springfield, Mass.) whose ancestry is believed to stem from Thoroughbred or Arabian lines. This stallion had a remarkable ability to produce offspring that were almost exact replicas of himself, carrying his own type of conformation, manners, way of going, and endurance. The Morgan is a compact, solidly built horse, very muscular, with powerful shoulders, thick neck and crest, heavy mane and tail, and shapely legs and feet. It stands 14 to 15 hands and weighs 800 to 1,000 lb. with colors bay, brown, black, or chestnut. It is shown at a walk, trot, and canter. Some classes require it to be ridden, driven, and jumped. The Morgan is a horse of great stamina, as shown on endurance trail rides.

A Hackney may be a horse or a pony. Hackneys are high-stepping, trappy-going

animals, show much animation, and carry a "docked" tail. Many good jumpers have Hackney blood.

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Ask More Federal Aid for Sheep Scabies Work

The nation's sheep growers have voted to ask Congress for a tagged appropriation of \$350,000 for use in eradicating scabies.

That action was taken at a special meeting of the National Wool Growers Association in Salt Lake City, May 24, 1951, where the sheep scabies problem was discussed by industry leaders and veterinarians representing federal and state agencies.

Attention was called to the fact that the disease now exists in about 20 states and that spread to other states is an ever-present danger. This was the basis for the federal funds appeal and for urging the U.S. BAI to "adopt a very aggressive attitude in cooperation with the states to bring about eradication."

The group also proposed that where dipping of sheep is required for interstate movement, one officially supervised dipping in benzene hexachloride or lindane be accepted by the receiving state.

Weak Calves

Four reasons for weak calves are given by Dr. J. W. Bailey (Illinois) in *Guernsey Breeders' Journal* (Feb. 7, 1951), namely: (1) contagious diseases such as brucellosis or vibriosis; (2) lack of vitamin A in feed of the pregnant dam; (3) general nutritional deficiencies in pregnant dam; (4) lack of iodine in rations of pregnant dam.

SURGERY & OBSTETRICS

AND PROBLEMS OF BREEDING

Education in Veterinary Obstetrics and Gynecology

NILS LAGERLÖF, V.M.D.

Stockholm, Sweden

TEACHING OF veterinary obstetrics in the Royal Veterinary College in Stockholm was mainly concerned with parturition until 1900, and the professor of surgery was also in charge of obstetrics. However, about this time, Swedish veterinarians began to do more pregnancy diagnosis and sterility work. It became clear that it was no longer possible for the professor of surgery also to teach obstetrics and so, in 1906, an assistant professor was appointed as head of the Obstetrics Department and of the ambulatory clinic run by the College.

In 1918, a professor was appointed for obstetrics and gynecology, and since then the scope of this work has been steadily increasing. At present, as well as the usual training in treatment of dystocia, the course includes sexual physiology and pathology,

sterility treatment of the domestic animals, and artificial insemination, as well as infectious diseases of the genital organs in male and female, brucellosis, and mastitis. As it has been found more suitable, dogs are not treated in the obstetrics-gynecology clinic but in the surgical clinic. The Royal Veterinary College in Stockholm has tried to adapt its teaching and research work to the developments in farming and breeding methods and this has compelled a rapid increase in the teaching of, and research into, the breeding diseases of domestic animals. In 1945, the department moved into modern buildings (fig. 1).

Staff Organization.—At the top of the department staff is the professor and head of the Department of Obstetrics and Gynecology. The stationary clinic and research work is done by an associate professor, an instructor, assistant professor in hormone research, assistant teacher in artificial

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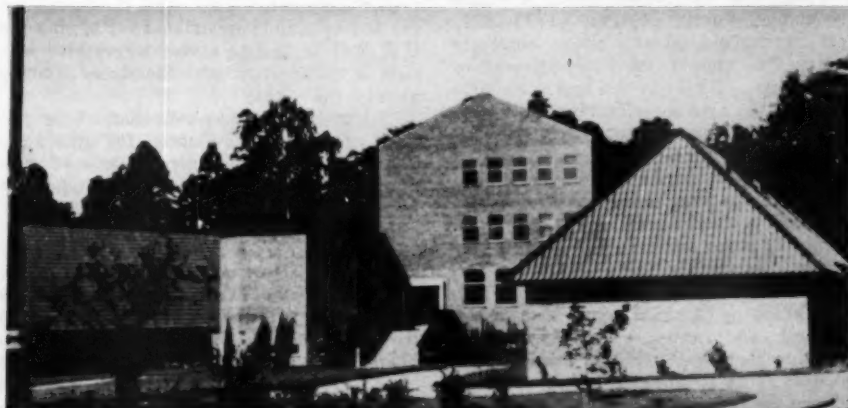


Fig. 1—The Department of Obstetrics and Gynecology at the Veterinary College in Stockholm, Sweden. A part of the clinic building (left); the institution building (center); and (right), the phantom hall.

breeding, instructor in artificial insemination, secretarial staff, and four technicians. In the ambulatory clinic, there is an associate professor, two assistants, and one assistant for special education.

this College has been studying hypoplasia of the gonads in cattle (Eriksson-Lagerlöf), nymphomania in cattle (Garm), and the etiology and pathogenesis of certain types of sterility in bulls (Lagerlöf and co-work-



Fig. 2—This picture shows four phantoms for parturition training: two of the "cows" are lying down and two are standing.

—Allmanna Foto Ateljen

The following laboratories conduct research and scientific work: a laboratory for the study of sperm morphology; a laboratory for sperm physiology; a laboratory for histologic work; and a laboratory for hormone analysis. There is a special research laboratory available for those studying to write a doctor's thesis.

During the last few years and at present,

ers). In connection with this work, the excretion of neutral steroids in bull urine and its association with sterility is being investigated (Meschaks). Recently, work has been done on sterility in boars (Holst).

In coöperation with the Animal Breeding Institute (Wiad), the relationship between feeding intensity, sperm production, and serving ability is being studied. In this

Fig. 3—A phantom for parturition training, with the "cow" lying down. The student is using Thygesen's embryotome. This phantom can be revolved so it can also be used to demonstrate torsion of the uterus.



—Allmanna Foto Ateljen

study, identical bull twins are being used (Bane and Hansson). Dr. Bane is also coöperating with professor Häggqvist at the Medical School in Stockholm in research on artificial induction of polyplody in mammals.



—Allmanns Foto Ateljé

Fig. 4—The top of the phantom is raised and the uterus opened; in this way, it is possible to watch the student's work as he corrects a malpresentation.

Veterinary Education in Obstetrics.—In Sweden, the time it takes for a student to become a qualified veterinarian varies, but the average is six to six and one half years. In his fourth year of study, the student begins obstetrics with a preparatory course and attends two-hour classes once a week. The work is done nearly exclusively on "phantoms", a method only little used in the United States, but several American colleges have been interested to learn more about it from the author.

The principle is that the student works first in the "phantom hall" with nonliving material so that when he later practices on living material which is liable to be injured, he will have had some previous experience. It is only by such a method that the student is able to get sufficient training in practices such as embryotomy and removal of retained after-births.

Since the material used, i.e., unborn calves and uteri from cows about to calve and with attached after-births, must be

bought from the slaughterhouse and thus may be infected, the phantom hall must be situated apart from the rest of the Department buildings to prevent spread of infection (fig. 1).

Teaching of Calving Methods.—Five phantoms are used for teaching calving methods. Each consists of a wooden box or cylinder into which is fixed the pelvic bones of a cow or a mare and into which is placed a leather uterus (fig. 2, 3, 4). The calves used are from cows near the end of gestation, which are slaughtered in the city slaughterhouse. These calves can be bought for the cost of their hides. To ensure a steady supply, refrigerator space is hired at the slaughterhouse and thus there are always some in reserve.

The training consists largely of correction of abnormal presentations and the use of the embryotome. In the phantom hall,

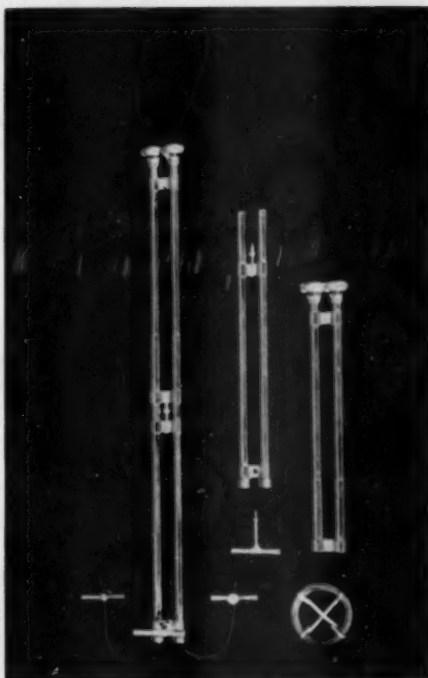


Fig. 5—Thygesen's embryotome—original model. For the last thirty years, practically all the veterinary surgeons in Scandinavia have used this type of embryotome and found it most satisfactory. The specially hardened mouth piece makes possible embryotomy in all fetal positions and in all directions.

the students practice embryotomy for anterior, posterior, and breech presentations. In the student's fifth year, he assists in the ambulatory clinic in calvings in living animals, for which work he is now well pre-



—Allmanna Foto Ateljén

Fig. 6—This shows removal of a retained after-birth from a phantom. On the ceiling of the phantom hall there are pictures to demonstrate sexual physiology, pregnancy diagnosis, etc.

pared. Practicing veterinarians who have had such training become so adept at embryotomy that very rarely is cesarean section in cattle indicated or employed.

For embryotomy, Thygesen's model is used almost without exception (fig. 5). Thygesen's original model has proved better than any of the modifications which have arisen, and it has now been in use for thirty years by all Swedish veterinarians in cattle practice.

Removal of Retained After-Births on Phantom Cows.—Uteri from cows soon to calve are obtained from the slaughterhouse. The calf is removed through an incision in the uterine wall, which is sutured before the uterus is used. The cervix is removed and the real uterus placed in a leather uterus in the wooden phantom (fig. 6, 7). The student who removes the after-birth wears a long rubber glove on his right hand and arm and an ordinary rubber glove on his left hand. During the phantom course, every student will take about 10 after-births, and after this training, he later re-

moves several more from living cows in the ambulatory clinic. In this way, he soon learns how to take, and also when not to remove, after-births manually.

Palpation of the Sex Organs.—For this purpose, a specially designed table (fig. 8) is used to introduce the students to rectal palpation of the sexual organs of the cow. The student then trains on cows waiting for slaughter at the slaughterhouse and, finally, in the ambulatory clinic he has more practice in palpation of the genitalia, pregnancy diagnosis, and sterility treatment.

Ambulatory Clinic.—The ambulatory clinic of the veterinary college has been allotted a district in which it does all the veterinary work. In this practice, there are about 10,000 cows, 1,500 horses, and 4,000 swine.

The clinic has six cars. Obstetric and gynecologic cases constitute a large part of the work. Every student works daily



—Allmanna Foto Ateljén

Fig. 7—The interior of an after-birth phantom, with the leather uterus open and a student removing a retained after-birth.

at the clinic for about two months; in the near future, this period will be extended.

Teaching in Hygienic Methods for Veterinary Field Work.—It is important that the students learn thorough and stringent hygienic methods. While he is working in the ambulatory clinic, every student must supply himself with rubber boots and, for gynecologic work, also rubber gloves and a rubber gown.

It is obvious, of course, that a practicing veterinarian who does not pay heed to necessary hygiene can very easily spread not only such diseases as tuberculosis, brucellosis, and mastitis but also many puerperal

and other infections causing sterility. Thus, it is of the greatest importance that veterinary students in theory, but even more so in practice, should learn what precautions must be observed so that when they

is a big responsibility—for the instillation of such hygienic ideas into the students. Naturally, if such a valuable part of veterinary education is to be done thoroughly, it is absolutely necessary that there be



Fig. 8—Special table to initiate students into palpation of sex organs.

—Allmanns Foto Ateljén

become veterinarians, they will not spread infections from diseased to healthy animals. We must admit that formerly veterinary education was considerably lacking in this matter. The teachers in gynecology and obstetrics, especially those in the ambulatory clinic, have the responsibility—and it

suitable equipment and rooms in the college for cleaning and disinfecting rubber boots and gowns (fig. 9) and for sterilizing and drying rubber gloves. In veterinary colleges with no ambulatory clinic, it seems to be hardly possible to give the students prop-

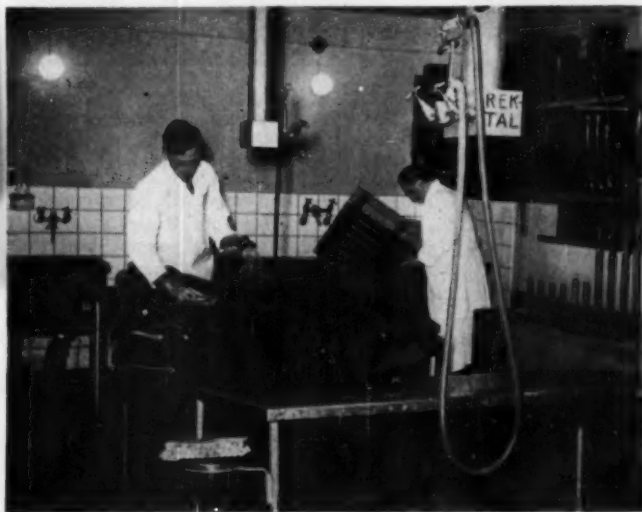


Fig. 9—Room for cleaning and disinfecting rubber gowns and boots. On the right, the rubber boots are kept immersed in disinfectant solution by wooden rods.

—Allmanns Foto Ateljén

er training on how to practice good hygiene under field conditions.

This is a very important matter for the veterinary profession all over the world, and must be emphasized in every country where the fight against such bovine diseases as tuberculosis, brucellosis, and infectious venereal diseases is being intensified.

Agglutinin Formation in Brucellar Infection of the Genitals of the Bull

A brief preliminary report is given of the findings obtained in 16 bulls with brucellar infection of the genitals.

Agglutination tests for *Brucella abortus* are made on secretions or exudates pressed from the ampullae ductus deferentis and the glandulae vesiculares and, in some cases, taken from the sequestal cavity in gangrenous orchitis.

The results thus obtained are compared partly with the corresponding agglutinin

titers of the blood and seminal plasma, and partly with the pathologic-anatomical findings in the organs mentioned. With a few exceptions, described in detail, these comparisons have shown a quite convincing relation between the occurrence of agglutinins and the finding of pathologic-anatomical changes in the corresponding organs, the most characteristic common feature of which consists in pronounced cell infiltrations made up chiefly of plasma cells in close connection with glandular epithelium and demarcation membranes.—N. O. Christensen. *Acta Path. Microbiol. Scand.*, 24, 1948: 202-209.

The determination of the percentage of motile spermatazoa in bull semen by means of the hemacytometer is a good measure of semen quality.—J. Anim. Sci., Feb., 1951.

AVMA Activities

"If veterinarians knew of all the work that is being done by the AVMA in their behalf, they would send immediately for an application blank to become a member, so they could support these worth-while services."—Editorial comment in the *Iowa Veterinarian*, 21, Nov.-Dec., 1950: 15.



—Acme Photo

This 4-year-old lion, "Jimmy," had his tail amputated by Dr. Milton Coane (API '40), of Trenton, N. J. The animal, a feature in Dick Clemens' wild animal circus, became involved in a controversy with another lion, and as a result Jimmy's tail was bitten through by the other lion.



—Acme Photo

"Beaumont Hanover," a 7-year-old race horse, is "fitted" with an auxiliary windpipe by Dr. V. C. Fobian (CORN '41) of Ballston Lake, N. Y. The tube was inserted at Cornell University after the animal was found to be experiencing difficulty in breathing in the final moments of a race.

CLINICAL DATA

Clinical Notes

Cross-immunization tests can not always be considered infallible in determining whether viruses are closely related.—*R. A. Kelsner, D.V.M., Univ. of Pennsylvania Bull., Jan. 13, 1951.*

A recent outbreak of avian pneumoencephalitis (Newcastle disease) killed 85 per cent of a flock of native and exotic waterfowl on a preserve in Wake County, North Carolina. Canada geese and blue geese were the only species not seriously affected.—*Wildlife Rev., Feb., 1951.*

Gramoderm—Antibiotic for Skin Diseases.—Gramoderm is the name of the new antibiotic used on 32 patients with a variety of diseases of the skin. The antibiotic agent contains gramicidin (0.25 mg. per gram) in a polyethylene glycol type base which enhances its absorption through the skin.—*Med. Times, Feb., 1951.*

Coccidia and Hookworms as Predisposing Factors in Virus Diseases

In many cases of virus diseases, infection with coccidia or hookworms or both is also recorded. It has been my observation in south Georgia that heavily parasitized dogs are the ones that come down with infectious hepatitis. I believe that parasites play an important role in predisposing animals to the onset of many virus diseases. Veterinarians should not minimize the role these two parasites play in the animal. Many veterinarians believe that when coccidia or hookworms are not seen in a chance direct smear, there is not sufficient infection to cause serious trouble. This is not true. These parasites, even in small numbers, alter the rate of metabolism, temperature, and nutrition. It is my belief that some virus infections enter the blood stream via the ulcerated lesion of the intestinal tract produced by these two parasites.—*Charles C. Burns, D.V.M., Thomasville, Ga.*

Many things can cause the death of pigs, but an excess of protein in their feed is not one of them.—*Univ. of Illinois Release, May 28, 1951.*

Ring Test vs. Blood Test.—Milk from 438 herds supplying five dairy plants in central Illinois was ring-tested. About 24 per cent (107 herds) reacted positively. Subsequently, 58 of the ring test-positive herds were blood-tested. About 76 per cent (44 herds) contained either suspicious or positive cows. When the results of the blood test were compared with those of the ring test, it was found that the stronger the ring test reaction, the greater the agreement between the two tests.—*Univ. of Illinois Release, June, 1951.*

Neoplasms in Small Animals.—For several reasons the study of neoplasms in small animals has not been pursued with great intensity in the past. Classification is easy in some cases, difficult in some, and impossible in others.

The clinical malignancy of tumors in the dog is not so great as might be expected from their histology, as compared with tumors of comparable histology in man.—*Vet. Rec., Feb. 3, 1951.*

Pasteurized goat's milk can be frozen and stored at temperatures ranging from zero to -17 F. for six months or more without appreciable deterioration or loss of flavor, according to the U.S. Bureau of Dairy Industry.

A highly sensitive modified phosphatase test has been developed by the USDA to detect adulteration of alfalfa meal. The test is aimed at exposing manufacturers who add ground field-cured hay to the dehydrated product.

The Use of Barium in Studying the Digestive Tract of the Dog

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FLUOROSCOPIC AND radiographic studies of the digestive tract of the canine patient are an important aid in diagnosis. The ability to demonstrate a positive finding, such as a foreign body, a stricture, or a tumor is most gratifying. It is only occasionally, however, that a positive x-ray finding is made. Like any other diagnostic procedure, the result is frequently negative, and though perhaps not so dramatic, it is

many who are satisfied with their radiography of bone structures are discouraged with their results in alimentary tract studies. The individual who has not attempted or who is not satisfied with his gastrointestinal diagnostic studies will find it advantageous to review Dr. Schnelle's text on radiology.¹ A vast amount of help may also be gained by consulting a local radiologist. Although not too familiar,



Fig. 1—Two minutes after administration of barium. Note visibility of gastric mucosal folds (case 1).

nevertheless of value in that certain suspected abnormalities are eliminated. Obviously, the diagnostic value of radiographic studies will vary with the efficiency of the equipment employed, as well as with the x-ray training and experience of the individual.

Few practitioners have the advantage of special training in radiology; consequently,



Fig. 2—Thirty minutes after administration of barium—stomach emptying, and barium filling duodenal loop and jejunum (case 1).

perhaps, with canine anatomy or with problems peculiar to the canine patient, the radiologist is in a position to offer many helpful suggestions in x-ray techniques and in the interpretation of x-ray findings.

This paper is presented with the hope that it might offer some help to practitioners who feel they are not getting optimum results from their x-ray examinations of

Dr. C. O. Seward is a practitioner in Bremerton, Wash.

¹Gerry B. Schnelle: *Radiology in Small Animal Practice*. American Veterinary Publications, Evanston, Ill., 1950.

the gastrointestinal tract. The material does not represent original research or anything new in x-ray technique, but simply offers a review of known procedures and

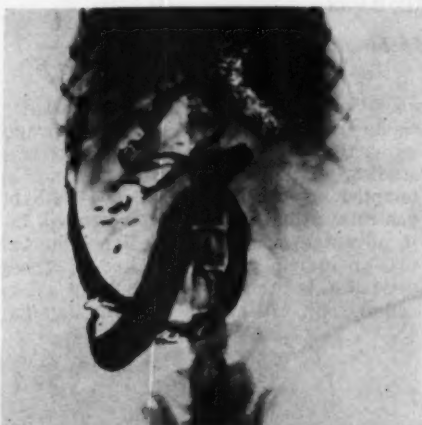


Fig. 3—Sixty minutes after barium—stomach contracted, duodenum emptying (case 1).

a discussion of their merit as used by the author.

BARIUM

In selecting radio opaque material to be used in a gastrointestinal (GI) study, it is necessary to consider which part of the tract is most apt to present an abnormality, and also to anticipate the possible type of lesion. U.S.P. barium sulfate is readily suspendible in water, easy to make into a homogeneous suspension, and is suitable for certain limited studies. It is satisfactory, for example, in determining whether any part of the intestine has been displaced into the thorax in suspected diaphragmatic hernia. A commercially prepared barium mixture is a little more difficult to make into a homogeneous suspension than barium sulfate, and is facilitated with a mechanical mixer.* It has the advantage, however, of possessing an adhering property which for most GI studies is an important asset. In any detailed study of the gastrointestinal tract where clinical symptoms suggest a possible ulcer, tumor, or small inflammatory lesion, barium mixture is preferable to U.S.P. barium sulfate. The

*An electric mixer is ideal, but a simple egg beater may be used.

lesion can often be observed only after the bulk of the opaque material has passed beyond the area leaving a light adhering film on the mucosa.

In preparing a suspension of barium mixture, it is desirable to obtain the consistency of a thick soup. The quantity of the suspension to be administered depends upon the size of the animal, and also upon the part of the GI tract to be studied. In gastric studies, for a 25-lb. patient, approximately 6 oz. will fill the stomach sufficiently to permit proper visualization of the organ. When primarily interested in the intestinal tract, without regard to the stomach, it sometimes is desirable to in-



Fig. 4—Eighteen hours after barium—traces of barium still visible in stomach and intestine, indicating no gastric retention or small bowel obstruction (case 1).

roduce only 1 or 2 oz. of barium. This small quantity will pass through the stomach more rapidly. The suspension in this case should be made quite thick, so that it will tend to stay within a limited length of the intestine as it flows through. It is possible then to observe by intermittent fluoroscopy or radiography the various parts of the intestine in greater detail, due to elimination of the obscuring effect of having the entire abdomen filled with barium-laden loops of gut. The temper-

ature of the mixture is worth consideration. If given very cold, the stomach contracts more violently, forcing the contents into the duodenum. The increased rate of peristalsis resulting from the cold mixture makes it possible to observe the flow of barium through the intestine at a more rapid rate.

RESTRAINT OF THE PATIENT

Since, in the canine patient, we are deprived of the voluntary coöperation afforded by the human patient, GI studies are more easily performed with the aid of anesthesia. Pentobarbital sodium (nembutal®) appears to have little or no effect upon the rate of flow of barium through the digestive tract and permits more accurate radiographic and fluoroscopic observations. Morphine sedation may be used in combination with this drug, but it has the disadvantage of slowing down gastrointestinal motility. When trembling occurs in a patient awakening from nembutal anesthesia, it may be necessary to administer more. In the event that a second or third dose seems hazardous, repeated injections of pentothal sodium may be substituted for the duration of the study.

PROCEDURE

After a twenty-four hour food fast and a twelve-hour water fast, the patient is completely anesthetized with nembutal,® administered intravenously. An anterior-posterior plate (scout film) is then taken of the abdomen. A thick suspension of barium is administered by stomach tube while the anesthetized animal is held in a normal standing position. Under this anesthesia, the swallowing reflex is feeble or absent, and in a horizontal position there is a tendency for some of the barium to be retained in the distal portion of the esophagus. If the x-ray equipment permits vertical fluoroscopy, there is an advantage in holding or suspending the patient in a normal standing position and observing, under fluoroscopy, the filling of the stomach. It has been found desirable to run the barium in slowly, about an ounce at a time, while manipulating the stomach with a bouncing motion to splash the material over the entire mucosa. In this way, a foreign body might easily be detected which may later be obscured after the stomach has been filled with barium.

Once the desired amount has been administered, the animal may be placed in a horizontal position and fluoroscoped in four positions, right lateral, left lateral, anterior-posterior, and posterior-anterior.



Fig. 5—Before administration of barium—sponge visible in stomach (case 2).

A radiograph may be taken in whatever position or positions indicated by the fluoroscopic findings. In suspected gastric foreign body, if the object is not revealed when barium is first introduced, a careful search should be made soon after the stomach has emptied. A coating of barium adhering to the object may render it visible for the first time. A piece of sponge rubber or some similar object with a slight adhesion of barium may escape detection by fluoroscopy, but be quite apparent in a radiograph. In examining the stomach or small intestine, fluoroscopic observations may be made at twenty- or thirty-minute intervals, and a radiograph taken whenever indicated or desired. As a suggested radiographic routine, a film may be taken soon after the barium appears in the duodenum and at thirty-minute intervals until the barium is well into the ascending colon. It is possible to observe, by fluoroscopy, the degree of gastrointestinal motility and to observe any gross deviation from the normal anatomy, but radiographs frequently will reveal pathological lesions undetected by fluoroscopy.

RADIOGRAPHIC TECHNIQUE

Gastrointestinal radiography requires more exacting technique than is usually employed for bony structures. To obtain



Fig. 6—The sponge is temporarily obscured by the large amount of barium in the stomach (case 2).

satisfactory radiographs of abdominal organs, it is necessary to use either a Potter-Bucky diaphragm or a stationary grid and intensifying screens. A small, focal point x-ray tube contributes to optimum detail. In a GI series, even though the patient is rendered motionless with nembutal, there is still gastric motility and peristalsis to contend with. To eliminate the effect of blurring due to such motion, it is necessary to use a short exposure. Exposures up to $\frac{1}{4}$ second will give satisfactory radiographs, and it is possible to obtain $\frac{1}{4}$ second exposures on a relatively inexpensive 15 milliamper machine.

In any radiographic study, such as a GI series, where a number of plates are made for comparative observations, a uniform radiographic technique should be followed. The kilovolt-peak and milliamper seconds, once determined to be satisfactory after examining the scout plate, should be kept constant in subsequent plates. A uniform procedure in dark room technique is equally important.

CASE 1

The patient, a 24-lb. adult male Cocker Spaniel, had a case history and clinical symptoms suggestive of a gastric foreign body. Vomition after meals had persisted

for three weeks. Upon admission, the patient seemed a little dull. Palpation of the stomach produced pain. Fluoroscopic examination failed to reveal any abnormality except for a moderate gastric distention. The animal was kept under close observation in the hospital for three days, during which time no significant symptoms were noted except for emesis. Although vomition occurred consistently within five to ten minutes after ingestion of either liquids or solids, it was estimated that about half of all ingested material was retained. The usual gastric sedatives and anti-emetics failed to prevent emesis. A clinical diagnosis of gastric foreign body seemed logical, and a gastrointestinal study was performed (see fig. 1-4).

Radiographic Diagnosis.—The radiograph showed no evidence of gastric foreign body.

Sequel.—The radiographs were demonstrated and the case discussed at a meeting of the South Puget Sound Veterinary Medical Association. A colleague suggested the daily administration of 400 mg. of thiamine chloride intravenously. By the eighth day, vomition had ceased, and the administration of thiamine was discontinued after the tenth day. The owner was contacted three months later, and there had been no recurrence of vomition.

Significance.—Although the GI series produced a negative finding, it was never-

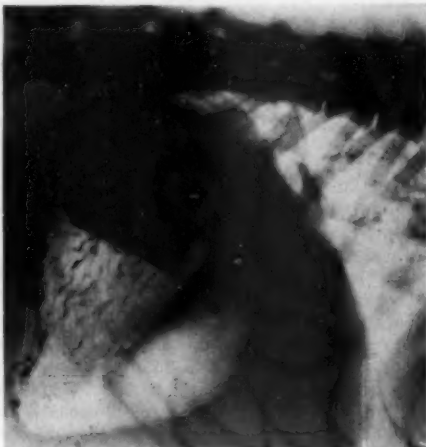


Fig. 7—Eighteen hours after barium, the sponge is well outlined (case 2).

theless of diagnostic value in failing to confirm the tentative diagnosis based on clinical manifestations. Further medicinal treatment seemed preferable to surgical intervention.

CASE 2 (EXPERIMENTAL)

The subject, an adult male dog, was obtained from the pound for the purpose of conducting an experiment to demonstrate the advantage of barium studies in revealing the presence of a gastric foreign body. A piece of sponge rubber 2 in. square was placed in the stomach with a gastroscope.

A scout plate was taken before the introduction of the sponge and another after introduction of the sponge (fig. 5). In comparing the two radiographs, it will be noted that without barium the sponge can be seen (fig. 5); but the object is not too clear and, in an inferior radiograph, it could easily escape detection. Figure 6 is included to illustrate the obscuring effect of barium in attempting to locate a gastric foreign body before the organ has emptied of barium. Figure 7 is the conclusive diagnostic evidence of a gastric foreign body and, when compared with figure 5, demonstrates the advantage of barium studies in arriving at an accurate diagnosis.

Gastric Ulcer in a Large Boar

J. F. BULLARD, D.V.M., M.S.

West Lafayette, Indiana

Those who are called to treat valuable adult hogs frequently are confronted with a rather indefinite syndrome which can not be associated with any specific condition. The common symptoms seen in these cases appear unrelated and one can notice only that the hog frequently shows an anorexia, normal to slight elevation of body temperature, rather habitual recumbency, frequent constipation, and a reluctance to move.

This case involved a Chester White boar weighing between 500 and 600 lb. When first noticed to be sick, he showed, in addition to the above symptoms, anemic membranes and evidence of digested and hemolyzed blood in his feces. This last symptom was the only one that could partially localize the condition, and from it a provisional diagnosis of hemorrhagic enteritis or colitis was made.

From the Agricultural Experiment Station, Purdue University, West Lafayette, Ind.

Treatment was symptomatic and consisted of a mild laxative, and $1\frac{1}{2}$ million units of penicillin in oil administered intramuscularly. At the same time, the herdsman was instructed to give a warm water



Fig. 1.—The large circular ulcer is to the left. At the center of its lower edge, the cardiac orifice may be distinguished as a slightly rounded projection with a depressed center. The pyloric orifice is to the right. The narrow appearing strip of mucosa was caused by its folding under as the stomach was opened and was probably due, in part, to the tension caused by the adhesions around the ulcer.

enema, which resulted in passage of several firm fecal masses. On the third day, a similar dose of penicillin was again injected. The boar's condition remained unchanged; during the fifth night, he died.

Upon autopsy, the only gross pathology observed was confined to the stomach. A large, round ulcer, $3\frac{1}{2}$ in. in diameter, completely surrounded the cardiac orifice (fig. 1). It was definitely circumscribed and had a punched-out appearance. A large, partially organized blood clot was fairly well attached to the ulcerated area; it measured approximately 4 by 8 in.

Sections for microscopic study, taken at the junction of the ulcer and the mucosa, revealed the complete absence of mucosa over the ulcerated area. There was considerable secondary infection present, as evidenced by a rather heavy infiltration of inflammatory cells which extended well into the muscular layers. The serosa was not involved.

Many similar sporadic cases have an indefinite etiology, and it is frequently next to impossible to determine the exact cause before death. In this particular case, the cause of the ulcer was undetermined but it was apparently the cause of death. It was also the only visible lesion to account for the presence of blood in the feces and for the resulting secondary anemia.

Rabies in Cattle—A Technique for Removal of the Cerebellum for Laboratory Examination

J. SCHLEIFSTEIN, M.D., and V. TOMPKINS, M.D.

Albany, New York

RABIES IN CATTLE is an important diagnostic problem to veterinarians and a severe economic loss to dairymen. The disease, which in New York State is now focused in wild animals, especially foxes, is spread to cattle

nearly large enough for a cow's head. As a result, various containers were improvised by veterinarians; the cow's muzzle was cut off, and many another device was used. Nearly everything conspired to delay the submission of specimens, and to make the examination troublesome.

The laboratory's method of removing the bovine brain up to 1947 was to open the skull with saw, axe, and chisel and remove the brain. This procedure was time-consuming, laborious, and also hazardous because of the danger of accidental

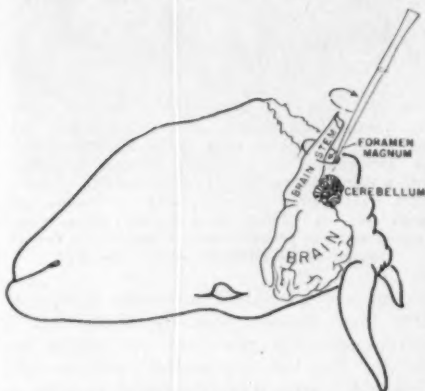


Fig. 1—Drawing of cow's head showing location of cerebellum.

by means of bites in pasture. Concomitantly, dog immunization programs have reduced the incidence of rabies in that species.

A marked increase of specimens from cattle examined in this and other laboratories in New York State dates from an amendment to the Agriculture and Markets Law (Article 6-A, Sections 105-c to 105-k, effective April 1, 1947) which allows indemnification for domestic animals, defined as "domesticated sheep, horses, cattle, swine, and goats," dying of rabies. A report showing evidence of rabies from a laboratory approved for this examination by the state commissioner of health is required before the owner can be paid for the loss. Practically all of these specimens are submitted by veterinarians.

This laboratory requires the submission of the head of the animal. Outfits consisting of a hasp-locked garbage can with excelsior about an inner metal container are provided for shipment. Ice can be packed about the inner container to refrigerate the specimen during transmittal or shipment by express. The outfit does not meet the requirements for mailing and, in any case, is not



Fig. 2—Examination for evidence of rabies. Side view of cow's head showing position for working (resting on horns exposing the ventral surface and foramen magnum); showing also preparation by removing atlas.

infection to the operator through injury by instruments or sharp edges of bone in the specimen head while removing the brain.

In a note published in 1939,¹ Greene and Breazeale stated that preparations made from the cord and stained in the usual manner demonstrated Negri bodies with facility equal to that obtained from the hippocampus major or the cerebellum. In our hands, this procedure has not proved successful.

In contrast to the dog, fox, and cat, we have found that Negri bodies in the cow are most readily demonstrated in the

From the Division of Laboratories and Research, New York State Department of Health, Albany, N. Y.

¹Greene, R. A., and Breazeale, E. L.: Preparations from the Spinal Cord in the Laboratory Diagnosis of Rabies. *J. Lab. and Clin. Med.*, 25, (1939):102.

Purkinje's cells of the cerebellum. This finding, while probably not new, seems not to have been generally recognized and has great practical applications. Both films and sections over a three-year period, involving observations on more than 400 cows, have repeatedly demonstrated this fact. Review of 100 successive cows showed that when the diagnosis was made by film or section, the preparations from the cerebellum were invariably the best and often the sole diagnostic ones. We hasten to add that Negri bodies are present in lesser numbers in the brain of rabid cows than in foxes or dogs.

Experiments on rabid brains preserved in buffered glycerol showed that Negri bodies could still be demonstrated in such material, both on film and section, even after preservation for several days. It has been shown, of course, that the virus can be preserved in glycerol for much longer periods. The conclusion defensible at this point, then, is that for demonstration of rabies in cows, the cerebellum is the specimen of choice and that, for practical purposes, the cerebellum in buffered glycerol submitted by mail is satisfactory.

Accordingly, the technique of removal of the cerebellum and an outfit for submitting the specimens are presented. Visualize the cow's head removed by disarticulation at the atlanto-occipital joint as a bottle

containing the specimen. The foramen magnum represents the mouth, the neck of which is occluded by a cork—the cord, medulla, and brain stem (fig. 1). To gain access to the cranium, first remove the cork, using two instruments—toothed tenaculum forceps and a knife with a long, rather thin,



Fig. 3—Close-up of foramen magnum showing removal of spinal stalk.

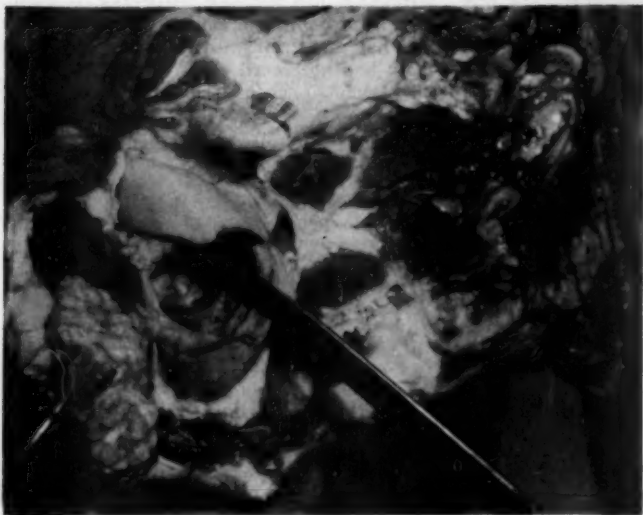


Fig. 4—Close-up showing removal of cerebellum.

blade, the conventional "amputation knife" (fig. 2). Seize the ragged fringe of dura and trim it away about the foramen magnum. Next, seize the cut end of cord or medulla and, while exerting traction (fig.



Fig. 5—Specimen (cerebellum), mailing outfit, history form, and directions.

3), insert the knife alongside the brain stem for a distance of about 6 cm. With the margin of the foramen magnum as a guide, rotate the knife in a circle to cut a long core which includes most of the brain stem. Remove and discard this.*

Removal of the brain stem core makes accessible the posterior fossa in which the cerebellum lies. It will be visible and readily identified by its prominent horizontal surface pattern. This may then be seized and removed, usually *in toto* (fig. 4). The obstacles to removal consist only of a few leptomeningeal vessels. The cerebellum is the specimen desired. Place it in a 4-oz. screw-capped jar containing buffered glycerol (fig. 5). The jar, in an inner metal and outer cardboard container, meets postal requirements. Special delivery postage is advised. If the specimen must be held, refrigerate it at 3 to 6 C., but do not freeze.

SUMMARY

Observations on cattle brains submitted for diagnosis of rabies have shown that the cerebellum is the specimen of choice for morphologic demonstration of Negri bodies. A technique for removal of the cerebellum through the foramen magnum and a mailing outfit for submission of the specimen

*We have been informed by Dr. G. C. Poppensiek, director of the diagnostic laboratory, New York State Veterinary College at Cornell University, that this constitutes the specimen of choice for the diagnosis of listeriosis. Since the differential diagnosis of "circling disease" versus rabies may be difficult when the clinical history is poor, it may be well to bear this in mind.

by mail are described. The technique and the outfit simplify the procedure of submitting specimens by the veterinarian.

Bacillary Hemoglobinuria in Kentucky

ROSS BROWN, D.V.M.

Lexington, Kentucky

On March 8, 1951, a Hereford steer, about 16 months old, was presented to this laboratory for autopsy. This steer was 1 of 75 purchased in Texas in January, 1951, and put in a feedlot on a concrete floor and fed silage, corn, and hay. At no time were they out of this feedlot.

When first examined by a veterinarian on March 8, 1951, the eyes of the steer appeared sunken and the mucous membranes were yellow. The animal seemed to be toxic and was wobbly. There was partially digested blood in the feces.

On autopsy, generalized icterus and extensive subcutaneous and subserous hemorrhages were found. Large infarcts were found in the liver, varying in size from 5 to 20 cm. in diameter. All the body cavities contained bloody serum. The bladder was distended and full of bloody urine. The feces was also streaked with blood. *Clostridium hemolyticum* was recovered from the infarcts in the liver.

The area in Texas where the steers were purchased had not had outbreaks of bacillary hemoglobinuria for the last two years. The hay and grain was not produced on the farm and no record was available to determine what part of the United States it came from.

As far as we are able to determine, this is the first case of bacillary hemoglobinuria that has been diagnosed in Kentucky where culture results were obtainable.

From the Department Animal Pathology, Kentucky Agricultural Experiment Station, Lexington.

The investigation reported in this paper is in connection with a project of the Kentucky Agricultural Experiment Station and is published by permission of the director.

Poisoning from 2,4-D.—Research work in South Dakota indicates that 2,4-D causes an increase in the nitrate content of plants and that these are built into poisonous substances in the paunches of cattle and sheep. They cause illness and death by blocking the transfer of oxygen.—*Prairie Farmer*, Feb. 17, 1951.

Hyperkeratosis of Cattle in Germany

KURT WAGENER, Dr. Med. Vet., Dr. Med. Vet. Habil.

Hannover, Germany

DURING THE YEARS 1946 to 1948, an unknown disease in cattle made its appearance in a limited area of northwestern Germany (District of Oldenburg, Land Niedersachsen). Later, it was definitely established that only the herds of ten farms were affected by this disease. Since the end of 1948, no further field cases of the disorder have been reported. This temporary and local occurrence may be the reason that farmers paid little attention to the disease and that there is not even a scientific publication about it in Germany to which I could refer. Therefore, it is necessary to give a brief description of the clinical picture and the lesions of the disease.

The first symptoms to be observed were lacrimation followed by salivation and reduced appetite, which caused emaciation, usually in connection with diarrhea of various degrees. The disturbed nutrition and metabolism caused, in most cases, a rapid loss of weight. Usually by the end of this acute or initial stage of the illness, the animals, particularly calves, showed a nasal discharge, erosions around the muzzle, and still more erosions at the mucous membranes of the mouth. These lesions developed into a proliferative stomatitis, the proliferations having the appearance and size of warts.

The symptoms of this subacute period led to a more chronic stage which is typical and may be regarded as specific for this disease. Beginning at the neck, the skin becomes dry, hairless, and thickened; and as the thickness increases, the skin becomes more wrinkled and folded. These folds are leather-like and can not be removed by stretching. One might compare the appearance of these skin lesions, which eventually extend over a larger part of the body, including the udder, with the appearance of elephant skin.

It is to be stressed that the heavily altered skin, even in an advanced stage of the disease, remains dry; no exudation, itching, or ulceration being observed.



—Armed Forces Institute of Pathology
Negative 219543-130418

Fig. 1.—Proliferative lesions from the lingual mucosa of a calf. Hyperkeratosis reproduced in a calf fifty days after exposure. $\times 48$.

Younger cattle, particularly calves and heifers, were more susceptible than cows. Calves sometimes died while still in the subacute stage of the illness without developing marked skin lesions.

The total death losses amounted to 153 animals. The disease apparently did not affect other domestic animals or human beings, although some farmers reported that their cats became ill and died with

Dr. Wagener is professor of bacteriology and animal hygiene, director of the Hygiene Department, Veterinary College, Hannover, Germany.

The author appreciates the assistance of Dr. H. R. Seibold of the Pathological Division, Bureau of Animal Industry, in the preparation of the skin tissue and in the selection of the fields from which the microphotographs were made.

similar symptoms at the same time their cattle were suffering from that condition.

Evidently the disease occurred during the winter when the cattle stayed in the stables. In the spring, when the rest of the herds had been turned to pasture, the disease made no further progress in so far as the number of affected animals and the stage of the disease were concerned. A few animals apparently improved or re-

the papillary layer, hyperkeratosis of skin and mucous membranes, and slight signs of inflammation were reported.

After this description of the observations in Germany, American research workers and veterinarians who are familiar with hyperkeratosis (or x-disease) in cattle in this country might be tempted to compare the German condition with their own experiences and observations. In this con-



Fig. 2—Heifer showing lacrimation thirteen days after exposure.



Fig. 3—Heifer twenty days after exposure. Note dry, scurfy, slightly wrinkled skin on the neck.

covered during their stay on the pastures. On the other hand, the disease showed up again when the herds which had been filled in so far as possible by purchasing new animals were brought into their stables in the fall.

There are only a few reports on autopsies of dead or slaughtered animals. Because postmortem examinations had to be carried out under field conditions, the reports are incomplete. In addition to the symptoms mentioned, there was also swelling of the liver with an increase of the interstitial tissue, and heavy retention of bile. The condition of the liver in a few cases was designated as "nutmeg liver."

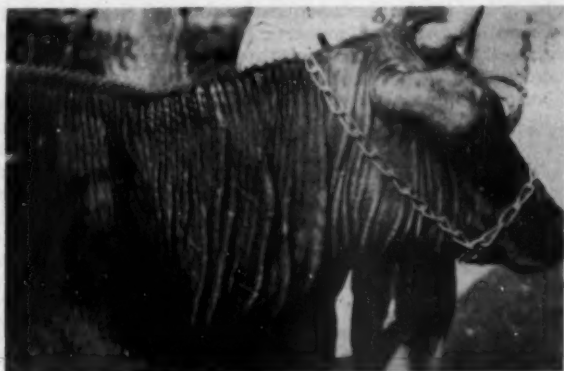
As far as it has been possible to trace back, only in 2 field cases was a histological examination of specimens from the skin and mucous membrane made. In the histological diagnosis, alopecia, hypertrophy of

nection, it might be stressed that the corresponding German experts did not know anything about the existence of a similar or identical disease in the United States until the beginning of 1950. At this time, the disease had already practically disappeared in Germany, as no new field cases have been recorded since the end of 1948.

Whatever may be the result of a comparison between the American and German cattle diseases up to the present time, there is one main difference between the results of research as far as the cause of the diseases is concerned. In the United States, hyperkeratosis is regarded as an "x-disease"; in Germany, the causative agent of the corresponding disorder has been found and scientifically proved.

When the condition affected the same farms a second winter (1947-1948), it was noted that only those farmers were troubled

Fig. 4—Heifer sixty-five days after exposure, showing marked hairless, folded, and thickened skin.



with it who painted the woodwork of their premises (barns, stables, lofts, etc.) with a certain wood preservative* which had been purchased at about the same time from a certain firm in that locality. It became evident on closer investigation that the animals were affected not only when they were stabled on premises with painted woodwork, but also when they were fed on hay which had been stored for some time in a loft made of wood treated in a like manner.

EXPERIMENTAL INFECTION

In order to prove this observation, a preliminary experiment was carried out under field conditions. The hay of three affected

*Owing to the heavy losses of building as a result of the war, wood for reconstruction became scarce in Germany. In order to protect the new wood used in reconstructed buildings against wood fretters (parasites, insects) and molds, a government regulation made the use of wood preservatives compulsory when government refunds were granted for reconstruction of war-damaged buildings.

farms was brought to the local veterinary institute and was fed to a healthy cow.

Four weeks later, the cow showed symptoms and lesions of the same type observed in the field. This animal was slaughtered two months after the beginning of the hay feeding.

The result of this experiment induced the farmers to attempt to get indemnity for the loss of their animals. The producer of the wood preservative, a well-known chemical plant, refused the claims of the farmer group, referring to the following facts:

- 1) The wood preservative had been produced for about twenty years without causing any harm to animals, which could be proved by the fact that no complaints had been made during that time.
- 2) The product charged as the cause of the losses was still produced in apparently the same way as previously without affecting the health of animals in any way.

Fig. 5—Heifer one-hundred days after exposure. Note extensive hyperkeratosis on the right side.



In order to decide the question of the influence of the wood preservative in this disease, the Hygienic Institute of the Veterinary College of Hannover was called



Fig. 6—Part of neck skin showing hyperkeratosis. Same heifer as shown in figure 5.

on by the farmers. This request made it necessary to carry out the following experiment:

In June, 1949, three little cabins (about 7 ft. wide, 9 ft. long, and 7 ft. high), previously used as experimental units for chickens, were lined on the inside with new wooden boards. The front consisted of a door and a large wire-protected window. Opposite the door, a trough was attached directly to the concrete floor. A small ventilator was attached to the ceiling of each cabin.

The wood of cabin 1 was painted with the same preservative which had been used on the farms affected with hyperkeratosis. Cabin 2 was not painted, and cabin 3 was painted with the same wood preservative (produced by the same factory) as cabin 1, but it was taken from the current production. In between cabins used for this experiment, there were two more units of the same size which were left empty.

A 9-month-old calf and a year-old heifer were placed in each cabin about five weeks after using the wood preservatives. A thorough clinical examination showed all 6 animals to be in good health. They were fed green feed and grain of equal ration, and always by the same man. Body weights and snapshots were taken several times during the experiment. Regular clinical

examinations were recorded at intervals of fourteen days.

While all of the animals in cabins 2 and 3 remained in good health during the experiment, the calf and the heifer in cabin 1 developed hyperkeratosis with the same symptoms as had been observed on the ten farms. Of the clinical records, only the following brief data can be given here:

Five days after the animals had been turned into cabin 1, the calf showed diarrhea which persisted in varying degrees during the following weeks. Between the seventh and twentieth day after exposure, the appetite of this animal decreased perceptibly, it showed marked lacrimation, and the skin on the neck became dry, scurfy, and somewhat wrinkled. After one month, the calf had lost 5 kg. in body weight, and it was emaciated and depressed in appearance. It underwent a rapid decline in general condition, which rendered it unable to stand or rise. The calf died on the fiftieth day after it had been brought into the stable. At autopsy, erosions and hard, wartlike proliferations were noticed on the tongue and the mucous membranes of the cheeks, the liver was swollen, and the gall bladder was about the size of a child's head. At the entrance to the thorax and in the lungs, a marked edema was evident.

The lesions on the mucous membranes of the calf's mouth were examined histologically and diagnosed as epithelial proliferation, slight and superficial necrosis of the epithelium, marked hyperemia of the papillary body and the subcutaneous tissue (fig. 1).

The heifer showed lacrimation from the eleventh day after exposure which persisted for the following weeks (fig. 2). About the twentieth day, the skin of the neck became dry, somewhat scurfy, and wrinkled (fig. 3). Between the thirtieth and fortieth days, the symptoms of the skin had developed into a marked folded thickness which extended as far as the shoulder. On the sixty-fifth and 160th days, the heifer had the appearance shown in figures 4 to 6.

On the day of slaughter (165 days after exposure), the skin lesions had extended as far as the udder and caudal region. The right side of the body, which had been turned against the wall of the cabin showed somewhat heavier and more extensive changes than the left side. Besides these symptoms, wartlike proliferations on the mucous membranes of the cheeks were found on postmortem.

As a result of this experiment, the farmers and the producer of the wood preservative made an agreement. An equitable reimbursement was made for the losses, and all painted woodwork was either removed from the premises or the paint was scraped off. After this procedure, no further cases of this disease or complaints were reported.

Aside from its economic and legal implications, this experiment proved that hyper-

keratosis of cattle in Germany could be caused and reproduced by a chemical ingredient of a wood preservative. As was evidently demonstrated by the experimental control (cabin 3), neither all wood preservatives nor even the same product was responsible for causing hyperkeratosis. In this case, only one particular tank car lot of this commercial product, which had been produced and used before and after hyperkeratosis occurred in Germany, apparently contained an unknown poisonous ingredient which has not yet been determined by chemical analysis.

From the field observations and the experimental results, it is concluded that the poisonous chemical compound which caused hyperkeratosis in Germany is able to affect cattle by contact as well as by feeding or inhalation. Moreover, the occurrence of hyperkeratosis over a period of two years on the same farms demonstrated the long-lasting potency of this mysterious poison.



—Armed Forces Institute of Pathology
Negative 219543-13048

Fig. 7.—Hyperkeratosis of skin produced in a cow exposed to a stable which had been painted with a noxious wood preservative ten months previously.
x 48.

This conclusion could also be confirmed by a further experiment which was later carried out in cabin 1. Eight months after the wood of this stable had been painted with the noxious wood preservative, a cow about 7 years old was brought in. About eighty days after exposure (*i.e.*, ten months after the painting of the walls), this cow showed significant hyperkeratosis, which extended as far as the hip when she was slaughtered, 120 days after exposure (one year after painting the walls). The histological skin lesions of this cow are shown in figure 7.

CONCLUSIONS

1) From 1946 to 1948, a then unknown disease, which later proved to be hyperkeratosis, appeared on ten farms in a limited area of northwestern Germany and caused the death of 153 cattle.

2) The disease was observed only on premises where the woodwork of barns, stables, lofts, etc., had previously been painted with a certain wood preservative from one individual tank car lot which had been distributed in that limited area at about the same time.

3) That the noxious influence of this wood preservative was the causal agent of hyperkeratosis could be demonstrated under experimental conditions.

4) The poisonous ingredient of this commercial product, which apparently affected the animals by contact, feeding, or inhalation, has not yet been determined by chemical analysis.

5) The unknown poisonous compound maintains its noxious potency for several years.

Transmissible Gastroenteritis in Swine

Transmissible gastroenteritis in swine is now recognized as an important disease of hogs — thanks to the original work done in the Department of Veterinary Science of Purdue University. It is a highly contagious and rapidly spreading disease capable of causing high mortality in baby pigs and important weight losses in older swine. Well-defined lesions of acute inflammation of the stomach and intestine are sometimes, but by no means always, found in baby pigs. A careful consideration of symptoms and lesions may be necessary in order to distinguish this disease from cholera — particularly early in an outbreak.

Evolution of a New Instrument

E. J. FRICK, D.V.M.

Manhattan, Kansas

About twenty years ago, a student handed the author a piece of gas pipe to protect a rubber stomach tube while debloating a cow. It was so useful that it

was used instead of a fetatome. We immediately applied slits to the cattle tube. Mr. Bundy, our machinist, conceived the idea of a sliding cross bar to act as a handle and bit strap to hold it in place.

While visiting the Colorado A. & M. College Division of Veterinary Medicine, I noticed that a light and battery had been added to the old Frick tube. This suggested

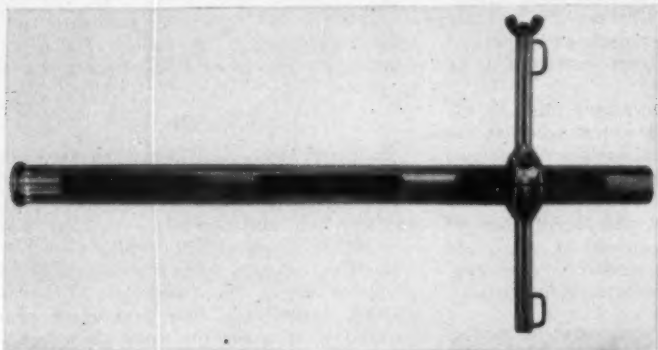


Fig. 1—Cattle tube with adjustable handle and slits to guide wire saw return. Slits also aid clip-on of pencil flashlight when instrument is used as a speculum.

was improved upon by rounding the ends so as not to injure the mouth. This became known as the Frick's cattle tube. Five years ago, we learned this tube was used by our students in lieu of a balling gun to administer capsules and tablets quickly to cattle. Last fall, Dr. W. A. Aitken of Merrill, Iowa, showed us a short slit pipe he

used instead of a fetatome. We immediately applied slits to the cattle tube. Mr. Bundy, our machinist, conceived the idea of a sliding cross bar to act as a handle and bit strap to hold it in place. While visiting the Colorado A. & M. College Division of Veterinary Medicine, I noticed that a light and battery had been added to the old Frick tube. This suggested

Dr. Frick is director of the clinic at Kansas State College School of Veterinary Medicine, Manhattan.



Fig. 2—Tube in place for embryotomy.



Fig. 3—Tube in situ, for stomach tube operations.

A New Disease of Ducks Reported

A new disease of ducks caused by a filterable virus has been described by Levine and Fabricant (*Cornell Vet.*, 50, 1950). It is characterized by a high mortality and rapid death in young ducklings. Enlarged livers with hemorrhagic areas and swollen injected kidneys are described by the authors as the principal necropsy findings. The virus differs from Newcastle disease virus by its failure to agglutinate chicken erythrocytes, and it is not neutralized by the antiserum.—*Vet. Med.*, June, 1951: 239.

There are more cases of human trichinosis reported in the United States than any other country of the world. The most important practice that keeps the prevalence of the disease at a high level in swine is the feeding of raw garbage.—*Vet. Med.*, June, 1951: 240.

Technique of Examining Sperm.—Some relatively simple procedures are involved in making semen examinations. These are discussed by Dr. G. R. Hartsough (*Am. Fur Breed.*, Feb., 1951). The basic needs are a microscope capable of magnifying at least 100 times, glass slides and clover slips, a specially designed dropper, and other simple equipment. The technique is discussed.

Pan American Foot-and-Mouth Disease Center Established

An international center for foot-and-mouth disease control, the first of its kind in the Americas, is being set up near Rio de Janeiro, Brazil, by the Pan American Sanitary Bureau. This bureau, a part of the World Health Organization, represents 21 American republics, including the United States.

Dr. Ervin A. Eichhorn (UP '35) has been named director of the center. In the employ of the U.S. BAI for many years, he recently was in charge of laboratory work on foot-and-mouth disease in Mexico.

The Brazilian government has provided an area already containing several laboratory buildings at Sao Bento, about 15 miles from Rio de Janeiro, and additional facilities will be constructed, including stables for 200 head of cattle.

Budget for the first year of operations is \$225,000, and limited work at the center is scheduled to begin in August of this

year. When the project is in full operation, the staff will consist of 13 professional, technical, and administrative employees, according to plans drawn up by Dr. Benjamin D. Blood, chief of the veterinary public health section of the Pan American Sanitary Bureau.

This Is Civil Defense

Present civil defense plans are largely in the talking stage, and though conference room chatter has its merits, it won't save lives during an enemy attack unless the talk is converted into action. To this end, the Federal Civil Defense Administration has issued an action-inspiring booklet that explains the over-all civil defense structure and the part that each citizen should have in it. This is the third in a series of government booklets, the first two having dealt specifically with atomic and biological warfare (see *JOURNAL*, Jan., 1951: 56; and June, 1951: 364).

These points are emphasized:

We, as civilians, are subject to enemy attack. Our country has the know-how and the means of effective civil defense, but the working organization to function during a disaster is yet to be formed. The voluntary services of 15 million people will be required in communities all over the nation.

Don't count on the Armed Forces to protect you at your doorstep. Their job is to fight wars mainly by carrying the attack to the enemy. They can be expected only to cooperate with, not to take over the work of, civil defense agencies.

The federal government has neither the intrastate authority nor enough personnel in its employ to do the whole job. Federal participation consists of basic planning, issue of technical information, and payment of part of the bill for bomb shelters and equipment. State and local government must do the rest.

Throughout, the responsibilities of the individual citizen are stressed. "No law in the world will work unless you back it up by your own actions," the booklet points out, adding that every person should volunteer now for some type of civil defense service. There are ten basic services, all of which need volunteers: warden, fire, police, health, welfare, engineering, rescue, communications, transportation, and civil defense headquarters staff.—[*This Is Civil Defense. Federal Civil Defense Administration, Publication PA-3. U.S. Government Printing Office, Washington 25. May, 1951. Price 10 cents.*]

NUTRITION

Effect of Previous Diet on Fasting Hypoglycemia

In an article entitled "Spontaneous Coma Due to Hypoglycemia in Undernourished Persons," Drs. Hugues Gounelle and Jean Marche¹ of the Foch Hospital in Paris describe a series of cases of hypoglycemia in undernourished persons that occurred in France during World War II. In referring to the relation of diet to hypoglycemia they say, "Along with famine edemas and tuberculosis, manifestations which the war of 1914-1918 has made us familiar with, . . . mention must be made of hypoglycemia due to famine. It was frequent, especially during the years 1941 and 1942, which were the hardest; often it was evidenced by serious manifestations, comatose and irreversible. Besides their clinical interest, these hypoglycemias are of great educational interest. The carbohydrate deficiency is less of a factor in their causation than total lack of balance in nutrition with its organic consequences and, more especially, its endocrine effects."

Symptoms.—Symptoms often observed in these cases of hypoglycemia, according to Gounelle and Marche, were complete coma, disturbance of respiration, muscular contractions, and a bilateral Babinski sign. Disturbance of respiration often appeared before coma was complete and was characterized by deep, irregular, and noisy breathing, often with typical Cheyne-Stokes rhythm.

Muscular spasms were not constant but were always of the same type, namely, the head was thrown back and the legs and arms were extended with the hands turned outward giving the appearance of decerebrate rigidity. In some cases, muscular contractions were slight or absent, even during part or all of coma.

In addition to the muscular spasms, some cases showed evidence of disturbed deglutition. In others, there was interference with or complete absence of tendon, cuta-

neous, and corneal reflexes. The authors call attention to the fact that in these cases of hypoglycemia associated with malnutrition, convulsions and perspiration were frequently absent whereas the opposite is generally observed in coma caused by hypoglycemia with hyperinsulinism. Affected persons were invariably emaciated. Bradycardia, hypothermia, and dehydration were also observed. Blood pressure readings were variable.

The most important change was a fall in blood sugar. In a typical case, the blood sugar level five to six days before coma occurred was 70 mg. per 100 ml. of blood, while just before coma it was 47 mg. per 100 ml., and during coma it decreased to 38 mg. per 100 ml. Values of 35 mg. per 100 ml. were often found during coma, but higher and lower values than this were not uncommon. Azotemia was present during coma, but there was no change in the alkali reserve, proteins, or chlorides of the blood. The cerebrospinal fluid was clear and appeared normal.

Gross and Microscopic Pathology.—No significant changes were observed in the brain (cerebrum) and visceral organs. Hypertrophy of the adrenals, predominantly of the medulla, was found in several patients. Often, there was atrophy of the hypophysis and a lack of chromophile elements. Histologic lesions were also evident in the diencephalon in some cases.

Pathologic Physiology.—Gounelle and Marche discuss at length the probable cause of these hypoglycemias. Although the authors agree that exhaustion of the glycogen reserves with failure of glyconeogenesis has a number of arguments in its favor, they look upon "an unbalanced diet, particularly the deficiency of fat and protein, and, on the other hand, an endocrine deficiency acting on the system causing hyperglycemia (hypophysis, suprarenals, thyroid gland)—itself secondary to the nutritional deficiency and emphasizing the nutritional disturbance caused by lack of balance of the main elements" as the primary influence.

Treatment.—The authors state that "to obtain a good result, it is necessary to strike hard and as soon as possible. Intravenous injection of hypertonic dextrose solution constitutes an urgent therapeutic

This article was prepared for the Nutrition Section by Dr. Jesse Sampson of the Department of Veterinary Physiology and Pharmacology, College of Veterinary Medicine, University of Illinois, Urbana. Dr. Sampson is a member of the AVMA Committee on Nutrition.

measure but does not suffice to prevent recurrence of the disease. Therefore, as soon as the patient has awakened, it is necessary to make him drink sugar syrup and above all to inject dextrose solution under his skin (500 cc. or 1,000 cc.), because we think that in these cases the intestinal absorption of carbohydrates is deficient. Finally, the patient must receive an abundant diet rich in fats and proteins during a long period, because the blood sugar often remains low (about 0.75 Gm.) [in 1,000 ml.] for weeks and recurrence of the disease is frequent."

The theories proposed by Gounelle and Marche to explain hypoglycemia in undernourished persons in France prompted Handler and Georgiade² to investigate the influence of previous dietary protein and of ACTH on the level of blood sugar in fasting rats.

Handler and Georgiade, although unable to duplicate all of the conditions mentioned by Gounelle and Marche in their observations on hypoglycemia in undernourished human beings, found in their experiments that "there can be little doubt but that the ability of the rat to maintain its blood sugar concentration during a fast is conditioned by the quantity and quality of its dietary protein intake previous to the fast. Independent of the carbohydrate and fat relationships, animals which have been fed low protein diets are not capable of maintaining their blood sugar levels during a fast. Further, as evidenced by the animals which were fed the gelatin-supplemented diets, the previous ingestion of a nutritionally inadequate protein, even at a moderately high level, does not improve this situation."

Handler and Georgiade also found that administration of ACTH caused a prompt rise in blood sugar in fasted rats which had been fed a prefasting diet high in protein, whereas a comparable rise was not so evident in similarly treated fasting rats that had received a prefasting diet low in protein. These investigators suggest that "the failure to maintain the blood sugar level in such animals may well be consequent upon the relative inability of low protein-fed animals to release ACTH at a rate comparable to that in properly fed animals."

Application of Research to Hypoglycemia in Animals.—The interesting observations reported by Gounelle and Marche and by Handler and Georgiade on hypoglycemia of undernourished human beings and of fasting rats, and the possible relationship of these hypoglycemias to previous diets, may have certain applications to hypoglycemias that occur in domestic animals. Hypoglycemia of varying intensity is probably found in many diseases of livestock and in domestic pets during malnutrition and cachexia. The ability of the animal to main-

tain a normal blood sugar level under such circumstances may depend, in part at least, upon the kind of ration it has received prior to the onset of the adverse situation. Observations along these lines would seem to be indicated.

References

- ¹Gounelle, H., and Marche, J.: Spontaneous Coma Due to Hypoglycemia in Undernourished Persons. *Occupational Med.*, 1, (1946): 48.
²Handler, P. and Georgiade, R. S.: Influence of Previous Dietary Protein and of ACTH on Blood Glucose Concentration of Fasting Rats. *Am. J. Physiol.*, 164, (1951): 131.

Feeding Thyroprotein to Dairy Cows

The response to such feeding was variable. Not all of the cows continued to produce above their estimated production, even though they received thyroprotein for a twelve-week period.

The daily feeding of 15 Gm. of thyroprotein to 8 cows resulted in an initial increase in milk production of 24.8 per cent. Of 7 cows in which lactation curves were projected, 4 remained above and 3 dropped below their estimated production. The average body weight of 4 cows decreased from 1,198 lb. to 1,126 lb., and then steadily increased to 1,175 lb. The heart rate increased from 62 to 86 beats per minute and remained fairly constant for a twelve-week feeding period.—R. P. Reece, *J. Dai. Sci.*, Feb., 1950.

Aphosphorosis in Cows

The first evidence of phosphorus deficiency in cows is the depraved appetite. Cattle instinctively lick walls, chew stones, wood, rags, and other rubbish. They are unthrifty, have a harsh staring coat and are hidebound. Later, there is marked loss of appetite, movement becomes stiff, and lameness is common. This stage of the disease is commonly called "bog lame" in Ireland.

The losses resulting are from low milk yields, fewer calves, and poorer growth, even among the animals having a sub-clinical aphosphorosis.

Beneficial effects were obtained by dosing clinical cases of "bog lame" with phosphates or by transferring them to a phosphate-sufficient pasture.—*Irish Vet. J.*, Nov., 1950, and Dec., 1950.)

EDITORIAL

Plans of Large Animal Hospitals Needed

A definite trend toward providing large animal hospital facilities is evident in the western part of the United States. These hospitals and clinics vary in size and in construction. Some are small, remodeled barns with room for only several animals. Others are much larger and are almost as elaborate as hospitals for human beings. Practically all have adjoining corrals and good equipment for loading, unloading, and restraining animals.

Veterinarians who have constructed these hospital facilities are almost unanimously enthusiastic about their practicality and versatility. They cite the following advantages: (1) ability to render a more complete, scientific, and therefore a more satisfactory service; (2) conservation of time—owners do the driving instead of the practitioner—and a saving in the time required to perform surgery or treatments because the necessary restraining facilities and equipment are available; (3) much more desirable working conditions; (4) increased practice and income; and (5) opportunity for two or more practitioners to operate from one establishment, which reduces individual operating overhead and allows "free" time for participating staff members.

There are disadvantages, too, such as: (1) the capital investment required for construction; (2) the relatively high operating overhead; (3) the "headaches" associated with acquiring and managing the professional and lay staff needed; and (4) the increased work associated with the proper hospitalization. However, the majority of the veterinarians practicing in, and from, these hospitals agree that the advantages greatly outweigh the disadvantages.

Dr. W. M. Coffee, AVMA president, has long been a staunch advocate of large animal clinics. In his many talks to professional groups all over North America, he has impressed veterinarians with the advantages of hospital facilities where proper restraint can be used. The AVMA Committee on Diseases of Small Animals in their 1950 report recommended that a com-

mittee be appointed to study plans for combined large and small animal hospitals. President Coffee heartily agreed with this recommendation and a new Special Committee on Hospitals for Large and Small Animals was appointed. Although this committee did not recommend definite plans, each member expressed his opinion relative to the desirability of "combination" hospitals. Their report has been submitted to the Association for presentation at the Milwaukee convention and will appear in the 1951 "Proceedings Book."

Although many of these hospitals already have been constructed, many more are in the blueprint or planning stage. The money that will be invested by veterinarians in hospital construction during the next few years will total hundreds of thousands of dollars. In order to provide sound suggestions on planning and construction to AVMA members contemplating building such hospitals, the JOURNAL will soon publish a series of plans of, and information about, hospitals that have been built. Whenever possible, these articles will include exterior and interior pictures, floor plans, construction features, materials used, and a description of their location and operation. It is hoped that approximate costs will also be supplied, as well as income, so that the economic value of the hospitals may be analyzed.

Members owning and operating hospitals used for large animals, or for large and small animals, are invited to supply pictures and descriptions of their facilities. Their contributions will be reviewed by the editorial staff and members of the Committee on Hospitals for Large and Small Animals and published as rapidly as possible.

Facilities and the type of construction required for satisfactory service will naturally vary according to location and climate. Likewise, the needs of those who will plan hospitals will vary. Therefore, all members are urged to submit descriptions and plans even though their facilities may not be elaborate or pretentious. Practitioners building hospitals want to acquire a max-

imum amount of service, efficiency, and durability for a minimum expenditure. In some localities or areas this may not mean large, elaborate or expensive "lay outs".

The fundamental advantages of having veterinarians practicing in and from hospitals, singly or in groups, is believed to be scientifically and economically sound. Well constructed animal hospitals correctly operated will add prestige to the profession by an expanded and improved service to animal owners. Small animal hospitals have proved to be highly desirable, and good, properly operated large animal hospitals will undoubtedly become equally popular, at least in many areas.

Veterinarians and OPS Ceiling Prices

About the only reason for publishing this is as a record of the times of this year of 1951 — during the period of "defense mobilization" and expanding federal controls over the lives of the people.

A teletype message received by the Association on June 22 from the chief of the Service Trades Branch, Office of Price Stabilization, Washington, D. C., stated that "Veterinary Services performed by veterinarians, registered or licensed under state or municipal (sic) laws, are exempt from price stabilization."

Thus ended a minor mystery of threatened federal regulation which had been created when some official apparently interpreted the General Ceiling Price Regulation issued by Mr. DiSalle's OPS on Jan. 25, 1951, later modified by Ceiling Price Regulation 34 of May 11, 1951, as being applicable to the services rendered by veterinarians, but that physicians, dentists, lawyers, and ministers were exempt.

The flurry of excitement and resulting activity to clarify the situation started on June 12 when the AVMA office received word, via Texas, that an OPS office there had ruled that veterinarians must file a list of ceiling prices for "nonprofessional services" with that office not later than June 15, 1951, and that such prices must also be posted in the veterinarians' offices by the same date.

A series of telephone calls over the next few days, including several to OPS headquarters in Washington, developed the following hazy picture:

a) Official interpretation of the ceiling price regulations in question in some quar-

ters was to the effect that certain "non-professional" services of veterinarians such as bathing, clipping, and plucking of pet animals came under the "service trades" provisions affecting barbers, beauticians, etc.

b) Informed that the AVMA had had no official notice of such a regulation nor an opportunity to be heard on it before its enforcement, the OPS advised that it had been published in the newspapers, and in the *Federal Register* of May 11, 1951. Asked if such publication constituted official notice, OPS replied in the affirmative, and stated further that "people are supposed to know the law."

c) OPS was informed that an official protest was being filed immediately by the AVMA requesting that any further implementation of Ceiling Price Regulation 34, as applied to veterinarians, be suspended and that they be exempted as certain other professions reportedly had been.

d) Informed that, in all probability, most of the 15,000 veterinarians in the U. S. would be in violation of the regulation on its effective date, June 15, 1951, because they had never heard of it, OPS said not to worry about it, because a "clarifying order" would probably be issued which would exempt veterinarians.

e) A check of several district offices of OPS in two states revealed that, in their opinion, the ceiling price regulations did not pertain to any of the recognized professions and that they did not intend to apply them to veterinarians or other professional men.

f) Tentative plans were made for AVMA representatives to go to Washington, if necessary, to get the situation straightened out. However, another telephone call to OPS headquarters on June 15 brought the assurance that an order was then "in clearance" which would exempt veterinarians from price stabilization regulations. With this verbal assurance, it was deemed safe to suspend further action, and it is hoped that the teletype message quoted above ends this particular incident of confused bureaucratic administration.

As this is written, the AVMA has information from only two states where, apparently, an effort was made to apply price stabilization regulations to veterinarians: Texas and New Hampshire. To our knowledge, it was not successful in either state.

CURRENT LITERATURE

ABSTRACTS

Pathological Alterations of the Bovine Oviduct

Gross and microscopic observations were made on the oviducts of 154 carefully selected repeat breeder cows. Of 103 cows slaughtered three days postinsemination, major pathological alterations were noted in the oviducts of 15.5 per cent, including 2.9 per cent pyosalpinx, 4.8 per cent chronic interstitial salpingitis, and 7.8 per cent hydrosalpinx. From the group of 51 cows slaughtered twenty to thirty-five days postinsemination, major pathological changes were seen in 12 per cent, including 4 per cent pyosalpinx and 8 per cent chronic interstitial salpingitis. In the three-day group, 56 per cent of the major lesions were associated with failures to recover ova and 25 per cent with findings of infertile ova. All major lesions in the twenty- to 35-day group were associated with dead embryos or failures to recover embryos. Similar uterine pathology was noted in 50 per cent of the latter group.—[Louise Lombard, Banner Bill Morgan, and Samuel H. McNutt: *Some Pathologic Alterations of the Bovine Oviduct*. *Am. J. Vet. Res.*, 12, (April, 1951): 69-74.]

Brucellosis in Slaughtered Hogs

Brucellosis in swine is recognized as a disease of increasing importance in the United States. Knowledge of the extent of this disease has rested primarily upon clinical observations in hogs and limited surveys employing the agglutination test.

The present investigation was undertaken in an attempt to extend our knowledge of the species of *Brucella* infecting swine, the extent of infection, and the amount of exposure of packing-plant personnel to *Brucella*.

Brucella was isolated in 35 instances, or in 0.7 per cent of the samples. Ten of these were *Brucella abortus*, 11 *Brucella melitensis*, and 14 *Brucella suis*.

The recovery of *Brucella* from the submaxillary lymph nodes of 35 of 5,000 hogs (0.7 per cent) should in no wise be interpreted as representing the total incidence of infection in these animals. It may, in fact, represent only those most heavily infected. When one considers the chance of recovering cultures from a single node of an infected animal, it is surprising that an incidence as high as this was found.

The regular recovery of all three species of *Brucella* in this study is noteworthy. Although *Br. abortus* in the hog had not heretofore been described, its occurrence was to be anticipated.

We have observed human brucellosis due to *Br. abortus* occurring in packinghouse workers where the exposure history implicated the hog as the source.

When one considers the incidence of high agglutinin titers found in this study, the question of exposure of packing-plant personnel to *Brucella* through the handling of hog carcasses assumes real importance. Even if the incidence of 0.7 per cent culturally proved *Brucella* infection in hogs were assumed to provide the only exposure, personnel in large packing plants who routinely handle hog carcasses would come in contact with *Brucella* several times daily.

The repeated isolation of *Br. melitensis* emphasizes the growing public health importance of this infection in hogs.—[N. B. McCullough, C. W. Eisele, and Emma Pavelchek: *Survey of Brucellosis in Slaughtered Hogs*. *Pub. Health Rep.*, 66, (1951): 205-208.]

Tick Paralysis in Cattle in Montana

This is a report of an unusually severe outbreak of tick paralysis in cattle. A total of 31 of 68 yearlings were down and in a more or less helpless condition.

Two hundred fifty head of cows and calves belonging to the same rancher were in a nearby pasture but were unaffected.

In the less affected yearlings, the chief symptoms were incoördination and unsteadiness of gait.

The more severely affected animals were completely paralyzed, lacking even the ability to hold up their heads. The temperature of these animals varied considerably, depending on the extent and duration of the paralysis. Temperatures of the most severely affected animals were subnormal.

Wood ticks, *Dermacentor andersoni*, were concentrated on poll, neck, and shoulders of the affected animals. Though heavier infestations without paralysis have been observed on other occasions, ticks removed from 8 of these animals demonstrated the degree of infestation. Counts were 10, 11, 29, 32, 36, 45, 49, and 85 ticks, respectively.

The prompt application of insecticide (chlor-dane 40 per cent technical grade) no doubt checked the outbreak, for by the next morning most of the ticks on the affected cattle were dead. Many animals recovered and were back on the range, and marked improvement of others was noticed during the day.

There has been much speculation as to the exact

etiology of tick paralysis and some experimental work has been done in an attempt to determine this point. The most acceptable hypothesis is that a neurotoxin generated by the salivary glands of the tick is injected into the tissues by the female tick in its feeding process. The rapid recovery that usually follows early removal of the offending tick suggests mainly a labile toxin as being the factor involved in the paralysis.

There is, however, abundant evidence that one or more engorging female ticks, *D. andersoni*, in the absence of infectious-disease agents, can produce a progressive motor paralysis, that in extreme cases is fatal.

This paralysis is sharply seasonal, coincidental with the active period of the ticks in early spring. Application of effective ascaricides or mechanical removal of the ticks relieves the condition promptly in all but the most severely affected animals. Adequate shelter of animals, good care, and cautious use of stimulants may hasten recovery and mitigate losses.—[W. L. Jellison, H. G. Stoerner, N. J. Kramis, and H. F. Beardmore: *An Outbreak of Tick Paralysis in Cattle in Western Montana. Vet. Med.*, 46, (1951): 136-166.] (See film review, "An Outbreak of Tick Paralysis in Cattle" (JOURNAL, Nov., 1950: 434.—ED.)

Aureomycin Therapy in Veterinary Medicine

Aureomycin, an antibiotic produced by a species of *Streptomyces* (a soil organism) is rapidly absorbed.

As a therapeutic agent, it has been used in the treatment of diseases caused by a large variety of pathogens in most species of domestic animals. The data on therapeutic application was derived from field trials arranged in cooperation with practicing veterinarians and veterinarians associated with colleges, universities, and experiment stations. As far as possible, the diagnoses were confirmed by laboratory methods.

These trials indicated that aureomycin was effective in the following diseases: in cats—coryza, infectious enteritis, furunculosis, infected wounds, otitis, and dermatitis; in dogs—tonsillitis, upper respiratory infection, pneumonia, gastroenteritis, coccidiosis, leptospirosis, otitis externa, furunculosis, impetigo, multiple skin wounds, and cystitis; in foxes—*Shigella paradyenteriae*; in cattle—calf scours, calf pneumonia, foot rot, hemorrhagic septicemia, pneumonia, septic mastitis, metritis, pulmonary abscesses, and chronic bursitis; in horses—strangles, sinusitis, septicemia, infected wounds, and shipping fever.

Aurofac® (aureomycin and vitamin B supplement) has been used as a supplement in nutrition trials with swine and fowl with resultant significantly increased weight gains and feed efficiency over controls fed the same basal ration. In the course of feeding experiments in swine, the absence of symptoms of enteritis in those fed aurofac was noted, whereas control swine fed a basal ration plus all essential vitamins and minerals

developed enteritis. When aurofac was added to the ration of the control hogs affected with enteritis, the symptoms disappeared in a few days. This indicated that the aureomycin present, even though at a low level, was sufficient to control some enteric pathogens. The levels fed were 0.25 per cent of aurofac or higher.—[R. L. Burkhardt: *Aureomycin Therapy in Veterinary Medicine. North Am. Vet.*, 32, (1951): 238-242.]

Inhibitory Effect of Cortisone on Liver Degeneration in the Rat

Degeneration of the liver leading to necrosis, hemorrhage, sudden coma, and death can be induced experimentally by a diversity of dietary means.

Cortisone (Kendall's compound E, 17-hydroxy-11-dehydrocorticosterone) is known to be a potent stimulator for glycogen formation in the liver. The authors have found that cortisone acetate has a delaying action on the development of liver degeneration in rats when given subcutaneously in daily doses of 1 mg./100 Gm. of body weight.

All rats on cortisone had an adrenal atrophy and an involution of the thymus. Two of them developed a marked symmetrical alopecia of the posterior body region. Separate analysis of the data for males and females showed no difference between the sexes in response to the hormone.—[Klaus Schwartz: *Inhibitory Effect of Cortisone on Dietary Necrotic Liver Degeneration in the Rat. Science*, 113, (1951): 485-486.]

The Resistance of DDT-Resistant *Drosophila* to Other Insecticides

The literature of the past few years contains many examples of the development of strains of insects resistant to various insecticides. This resistance has been explained on the basis of the intense selection that occurs in treated areas.

The purpose of this investigation was to determine the extent of the resistance of DDT-resistant *Drosophila melanogaster* to other contact poisons. *Drosophila* were used as test insects because of the ease with which they can be raised in large numbers in the laboratory and because of the possibility of much more precise genetic analysis than would be possible with any other species.

Fine crystals of DDT were scattered in the cage in gradually increased amounts as the flies became more resistant. At the end of a year, only about 5 per cent were killed by a concentration of DDT that killed about 95 per cent of the control flies.

About four times the DDT concentration was required for the resistant strain as for the susceptible strain from which it was derived. The first five of the other chlorinated insecticides tested showed a similar, but lesser, differential mortality between the two strains. All these are chlorinated compounds. On the other hand, there was no significant difference in the response of

the two strains to the five nonchlorinated compounds. Thus it appears that when flies are selected for resistance to DDT, there is some carry-over of resistance to other chlorinated compounds, but very little, if any, to other contact insecticides.—[Richard Weiner and James F. Crow: *The Resistance of DDT-Resistant Drosophila to Other Insecticides*. *Science*, 113, (1951): 403-404.]

Measurement of Arterial and Venous Pressure in Cattle

Application of a new type electronic manometer to the measurement of blood pressure in 105 normal and abnormal dairy cattle is described. Comparison of lead and plastic tubing for connection of the cannulas to the instrument appeared to indicate little practical advantage of the lead tubing. Cannulation of the common carotid artery, using local anesthesia, at right angles to its long axis with 16-gauge, 3-in. needles appeared to give reasonably satisfactory pressure registration. Topographic differences in upstream/downstream bevel position records did not appear to alter the basic contour of the pulse wave. Helpful points of procedure and tracings typical of normal carotid and jugular pulse curves in dairy cattle are presented and discussed.—[A. F. Sellers and A. Hemingway: *Direct Measurement of Arterial and Venous Pressures in Cattle Using the Electro-manometer*. *Am. J. Vet. Res.*, 12, (April, 1951): 90-96.]

Effect of Iodine Compounds on Horse Strongyle Larvae

The lethal action of 61 organic and inorganic iodine compounds on horse strongyle larvae and/or eggs in manure was studied. Compounds in which the iodine atom was attached directly to a carbon atom in a benzene or other ring were relatively inactive compared with inorganic, aliphatic, onium, and heterocyclic ring compounds in which the iodine was not attached to a ring carbon.

Compounds which were lethal at a concentration of 0.0005 molar or less were ammonium iodide, red mercuric iodide, potassium iodide, sodium iodide, potassium iodate, potassium metaperiodate, ethylene iodide, iodoacetic acid, beta-iodopropionic acid, ethyl-beta-iodopropionate, trimethylene iodoacetate, pyridine methiodide, gamma-collidine methiodide, piperidine hydroiodide, N, N-dimethyl piperidine iodide, 1,2,6-trimethyl-tetrahydroquinoline hydroiodide, triethyl butyl ammonium iodide, triethyl benzyl ammonium iodide, phenyl trimethyl ammonium iodide, trimethyl sulfonium iodide, tetramethyl arsenic iodide, triphenyl methyl phosphonium iodide, diphenyl iodonium iodide, and bis-(p-iodophenyl) iodonium iodide.—[Norman D. Levine: *Screening Tests of Iodine Compounds Against Horse Strongyle Larvae*. *Am. J. Vet. Res.*, 12, (April, 1951): 110-115.]

Fowl Typhoid in Turkeys

When administered in the drinking water of turkeys, sulfamethazine (0.1%) was not as effective as sulfaquinoxaline (0.025%) in controlling mortality due to fowl typhoid (*Salmonella gallinarum*). Neither drug prevented spread of the disease. Drinking water medicated with sulfamethazine (0.1%) and/or sulfaquinoxaline (0.05%) for forty-nine days did not affect water consumption, egg production, fertility, hatchability, or egg shell texture. *Salmonella gallinarum* was isolated from eggs produced by hens on the two drugs. Poults from the same source became infected with typhoid during the first week of brooding and responded to sulfaquinoxaline medication. Sulfaquinoxaline in drinking water, at the rate of 0.04 per cent for two days followed by 0.25 per cent continuously, controlled mortality due to fowl typhoid.—[W. A. Boney, Jr.: *A Study of Sulfaquinoxaline and Sulfamethazine in Fowl Typhoid Among Breeder Turkeys*. *Am. J. Vet. Res.*, 12, (April, 1951): 134-139.]

Rhinitis in Swine

An earlier paper reported that washings from affected baby pigs reproduced the condition when instilled in the nasal passages of others. Nineteen experiments with litters of baby pigs are reported.

The first litter of an infected gilt became infected but not the second litter. The nasal material of the dam was no longer infective.

Anemia due to iron deficiency did not appear to be a predisposing factor.

There is some suggestion that two factors may be concerned in the etiology of infectious atrophic rhinitis, but further work will be necessary to determine whether this is true.—[Ronald Gwatkin, P. J. G. Plummer, J. L. Bryne, and R. V. L. Walker: *Rhinitis in Swine. V. Further Studies on the Aetiology of Infectious Atrophic Rhinitis*. *Canad. J. Comp. Med. and Vet. Sci.*, 15, (1951): 39-47.]

Fertility of Boars

Thirteen Duroc-Jersey boars were raised in a barn on concrete floors with very little room for exercise. They were farrowed by gilts raised under similarly restricted conditions. Seven of the boars were from the second generation raised in the barn; 6 were from the third generation likewise raised in confinement. The boars grew well on a ration composed of varied amounts of ground yellow corn, tankage, and soybean oil meal, and including alfalfa meal (10%), distillers solubles (5%), linseed meal (2%), steamed bone meal (0.5%), and salt (0.5%), to which was added approximately 6 Gm. of irradiated dry yeast per 100 lb. of the mixture. The boars began to exhibit sex interest at about 5 months of age and were used for breeding at 6 to 9 months of age. They were mated with 62 females. Four of these did not conceive, 2 died, 1 was marketed before

farrowing, and 1 was slaughtered without a count being made of the embryos. The remaining 54 animals farrowed, or were slaughtered and their uteri examined, and a total of 533 pigs were counted. Six third-generation boars later were sold to six farmers who mated them with 59 gilts. Fifty-three of these, on which records were available, farrowed a total of 476 pigs. A "lot of exercise," direct sunlight, and pasture are not essentials in the production of fertile boars.—[L. E. Hanson: *The Fertility of Boars Reared in a Restricted Environment. Am. J. Vet. Res.*, 12, (April, 1951): 118-122.]

Another Vaccine Against Newcastle Disease

It was found that the highly virulent strain Suminta I of Newcastle disease virus could be converted into two alternated lines through intracerebral passages respectively in ducklings and striped guinea-doves (*Goepelia striata*). Both lines proved to be practically apathogenic when applied parenterally and to meet requirements of good vaccine virus. Methods and techniques are set forth in detail.—[I. Martini and R. Kurjana: *Another Vaccine Against Newcastle Disease. Hemara Zia*, (Sept., 1950): 558-571.]—L.V.E.

Multiple Tumors in a Bovine Uterus

The authors describe a case of leiomyomatosis in the uterus of a cow. The tumors grew extraordinarily rapid and in three to four months attained a total weight of 280 kg., all confined to one of the horns of the uterus. Histologically, such tumors are benign. In the case described, there were about 50 separate growths which in a short time caused the death of the animal concerned. The other horn was normal throughout.—[M. Van der Plassche and J. Thommen: *Multiple Tumors in Bovine Uterus. Vlaams Diergeneesk. Tijdschr.*, 19, (1950): 215-219.]—L.V.E.

The Two Tests for Brucellosis

In connection with a study pertaining to brucellosis, the author availed himself of an opportunity to compare the validity of the two diagnostic tests in general use in the diagnosis of brucellosis. He found that the so-called ring test is specific, sensitive, and suitable for the purpose. The test requires a minimum of personnel and has the advantage that it can be completed by the veterinarian. Furthermore the animals are not disturbed and hence there is no adverse influence on the yield of milk.

Compared with the agglutination test, the results show them to be similar. Hence, there is reason, in many cases, for the ring test to displace the agglutination test. By this method, the milk from 192 dairy herds in the ambulatory clinic, representing an area with a radius of 4 miles from Gent, has been examined. Comparing this test with the tube-agglutination method on the blood of individual cows, it was found that the results

of both were the same in 91.92 per cent of the cases.

Finally, in three dairies the milk from 1,256 herds was examined and 6.53 per cent were positive.—[P. Hardeman: *The Two Tests for Brucellosis. Vlaams Diergeneesk. Tijdschr.*, (Jan., 1951): 1-8.]—L.V.E.

Vaccination Trials Against Newcastle Disease

Extensive trials with vaccination against Newcastle disease were undertaken. The authors drew the following conclusions:

1) The use of tissue vaccine inactivated by formalin against the disease and adsorbed on gel of aluminum hydroxide is harmless and yields an immunity appearing irregularly, reaching a maximum after two months. The immunity is of short duration.

2) The use of the attenuated Hertford strain as a living vaccine rapidly causes a strong and perhaps enduring immunity. However, this vaccination is apt to be accompanied by serious disadvantages such as loss of eggs (60%) during a period of fourteen to nineteen days, as well as a total loss by mortality.

3) The double vaccination first undertaken with inactivated vaccine and two or three weeks later with living vaccine to a high degree reduces the disadvantages associated with the use of living vaccine alone. The double vaccination is especially indicated in connection with young fowl, which were vaccinated with living vaccine at the age of 3 months.

4) The influence of the vaccination on hatching eggs is not clear. As a matter of prudence, it is advisable not to use hatching eggs until three weeks after inoculation.—[L. M. G. Guerden, A. Devas, and J. Mortelmans: *Vaccination Trials Against Newcastle Disease. Vlaams Diergeneesk. Tijdschr.*, 19, (1950): 177-194.]—L.V.E.

Canine Leptospirosis in Japan

Of 360 dogs examined over a two-year period, 6.4 per cent were found to be carriers of *Leptospira* of which only 1 had symptoms of leptospirosis. Serum of 45 per cent of the total number reacted positively to the agglutination reaction. There appeared to be some relationship between the presence of interstitial nephritis and the occurrence of a positive serologic test. Of 21 dogs with many *Leptospira* organisms in the kidneys, only 1 had renal hemorrhage. The others were grossly normal. Eighteen strains of *Leptospira* from dogs were examined and all were found to be the *canicola* type. A vaccine made of phenolized cultures of *Leptospira canicola* and *Leptospira icterohemorrhagiae* is recommended.—[Sintaro Yamamoto: *Über Leptospirosen der Hunde in Japan. III. Beobachtung der Leptospirosen bei Hunden im natürlichen Leben und Schutzimpfung Gegen Hundeleptospirosen. Jap. J. Vet. Sci.*, 5, (1943): 70-71.]—A.G.K.

BOOKS AND REPORTS

Chemical and Medical Facts About Mineral Oil

Industries, as well as the medical professions, will find valuable reference material in this factual book on white mineral oil and petrolatum. Like the biography of a famous person, this book gives information that most people never knew—or never took the trouble to learn—about products that have been widely known and used in this country for nearly a half century.

Russian scientists are credited as pioneers in white mineral oil refining. American production began during the first world war when imports were discontinued, and our industries have done so well that the United States product now excels the white oils refined abroad.

The product in all of its technical aspects is traced from oil well through refinery to use in industry, medicine, and veterinary medicine. The list of some 50 scientific and industrial uses of white mineral oil and petrolatum is a revelation. Although the tabulated information on external and internal uses of white oil in animal treatment already is well known to veterinarians, there is bound to be new knowledge gained from reading of its uses in such diversified fields as large-scale penicillin production and food and feed processing, including egg preservation and poultry feed manufacturing.—[*White Mineral Oil and Petrolatum*. By Erich Meyer, Ph.D. Cloth. 135 pages. Illustrated. Chemical Publishing Co., Inc., Brooklyn, N. Y. 1950. Price \$4.75.]

Surgical Principles and Techniques

This book is an up-to-date, more comprehensive edition of the 1948 issue by the same author entitled "Surgical Technics for Veterinary Students."

The method of presentation of the material in the book is to be commended. After preliminary subchapters on wound healing, infection and its handling, dressings, suture materials, antiseptics and disinfectants, sepsis, and other basic material, the author brings together established facts about such modern chemotherapeutic agents as the various sulfonamides and antibiotics. The presentation of the subject of anesthesia under such subdivisions as local anesthesia by infiltration, nerve blocking, epidural anesthesia and paravertebral anesthesia, and sedatives and hypnotics used as anesthetics, barbiturate anesthesia, and general anesthesia is especially applicable since refinement in veterinary surgery is an ideal of all those interested in humane principles in the handling of our patients. Fluoroscopy and radiology are not neglected.

In the strictly surgical field, the handling of ailments of the eye and its appendages is well presented. This is followed in sequential order by

Equine Operations, Bovine Operations, Castration of Farm Animals, Canine and Feline Operations, and Additional Technics and Case Reports.

There are surprisingly few typographic errors—these do not in any way detract from the clarity of the book and its high merit. It would be helpful if all the illustrations had explanatory legends under them.

The written material is informative, and it is presented in a concise manner. Since all of this is based on the author's rich experience as a teacher, demonstrator, and clinician it makes the book a distinct contribution to modern veterinary literature.—[*Surgical Principles and Technics*. By W. F. Guard. 186 pages. 8½ in. by 11 in. Well illustrated. Edwards Brothers, Inc., Ann Arbor, Mich. 1951. Price not given.]—R. R. DYKSTRA.

Bacteriology

All the important facts, processes, and techniques in medical, veterinary medical, agricultural, and industrial bacteriology have been summarized in this clear, well-organized, inexpensive reference manual. Special chapters deal with the bacteriology of the soil, plants, air, water, sewage, alcohol, textiles, food, dairy products, public health, and communicable diseases.

Information and techniques developed during World War II, as well as recent significant developments in the various fields of bacteriology, such as data on bacteriostatic agents, on the new antibiotics, have been culled from hundreds of books, professional journals, abstracts, and articles, and have been integrated into this new edition.

It is a handy and valuable book for veterinarians to have as a quick reference source of data or as a review of fundamentals.—[*Principles and Practice of Bacteriology*. By Arthur H. Bryan and Charles G. Bryan. 350 pages. More than 100 illustrations including two sections in color, plus tables, charts, glossary, bibliography, detailed index, and samples of recent professional examination. Barnes & Noble, Inc., 105 Fifth Ave., New York 3, N.Y. 1951. Price \$1.75.]

Observations on European Animal Disease Problems

In a new publication, California presents an example of what a single state can do to become better informed on international aspects of animal disease control, during an era when the seven-league boots of world-wide communication expose every piece of land to exotic diseases.

The California senate, mindful of its responsibilities in protecting the state's livestock wealth, selected two well-known veterinarians, Drs. C. U. Duckworth and J. Traum, to study animal diseases in Europe during the spring and summer of 1950. They visited many countries, recorded facts and evaluated theories, and then came home to interpret these observations in terms of their own state's present and future needs. They gave prin-

cipal attention to foot-and-mouth disease, bovine tuberculosis, brucellosis, trichinosis, and Newcastle disease.

In brief summary, these were their observations on foot-and-mouth disease control in the various countries visited:

England—leadership in research and virus typing; depends consistently upon slaughter and quarantine.

France—no slaughter; sick animals isolated and treated with convalescent serum; vaccination to encircle an outbreak wherever possible.

Holland—commendable vaccine research; reporting and quarantine enforced in all outbreaks; new law requires annual vaccination of all cattle, but not swine.

Germany—quarantine; occasional use of convalescent serum in sales barns; vaccination of animals on show circuits.

Switzerland—slaughter of affected and exposed animals and vaccination of surrounding livestock.

Sweden—quarantine and slaughter except in widespread outbreaks; vaccination of valuable animals; some use of convalescent serum.

Norway—no recent trouble; last outbreak (1945) dealt with by slaughter.

Denmark—vaccination and quarantine; no slaughter.

With regard to bovine tuberculosis in the countries visited, France, Holland, Germany, and England have the biggest problem. The incidence is lower in Norway, Sweden, Switzerland, and Denmark.—[*Foot-and-Mouth Disease and Other Diseases of Animals in Europe*. Published by the Senate of the State of California, Sacramento. Paper. 256 pages. Illustrated. 1951.]

New Ways to Better Meetings

Any book of rules that has been in use as long as "Roberts' Rules of Order" is bound to be attacked as old fashioned. The authors of this book apparently have the firm conviction that the parliamentary rules described by the engineer, Mr. Roberts, serve as a strait jacket for many meetings. With this conviction, they have spent several years exploring and developing a new approach to meetings of small and large groups.

If you are not satisfied with the type of meeting you are attending or conducting, it would be wise to study this book. It is the theory of group dynamics, which basically says that a decision reached by a group in which all contribute is bound to be better than any decision reached by fewer people. It is not within the province of this reviewer to try to settle that question. However, the authors are thoroughly convinced that their approach to conducting meetings will result in more interesting meetings, more active participation by all in attendance, and in a more positive, active "follow-up" program.

Whether the reader will adopt all of the ideas and principles projected in this book is not as important as the fact that there are many ideas in

it that merit the serious consideration of anyone called upon to plan or participate in meetings, large or small. Certainly such ideas as a census of the problem, "the blackboard member," the "observer," and the evaluation of the meeting are additions which any meeting will profit from. There can be little doubt that some of the other techniques suggested, such as the demonstration meeting, the dress rehearsal, and the "discuss and decide" method are worth-while procedures. However, many busy meeting attenders and group chairmen will probably feel that the time necessary to do all of these things will hardly justify the additional results which might be expected to come from a meeting.

Anyone who has to "chair" or attend meetings (and in these days who doesn't?) will enjoy reading this book, even though they may not agree with it. As pointed out, there are no doubt many ideas in it which everyone can use to good advantage. It will also result in a critical self-analysis as the reader tries to decide which of the meeting "types" he is.—[*New Ways to Better Meetings*. By Bert and Frances Strauss. Cloth. 171 pages. The Viking Press, Inc., 18 East 48th St., New York 17, N.Y. 1951. Price \$2.95.]

Infectious Diseases of Domestic Animals

A complimentary review of the first edition of this book is in volume 102 (March, 1943) of the AVMA JOURNAL. The present edition, brought strictly up to date and expanded some 250 pages to include new information on the subjects treated, and one new chapter on chemotherapy certainly merits similar acclaim.

The authors' comment that the work is less than a textbook of bacteriology in that "a knowledge of the general principles of the subject is taken for granted" challenged this reviewer to a comparison of it with other recognized textbooks of veterinary bacteriology. As a result, it is his firm opinion that it compares most favorably with the best, and is much superior to some.

If there be any abridgment of what bacteria are, it is more than balanced by what they do and how they may be successfully controlled.

This reviewer would also challenge the authors' statement that "the book is not an encyclopedia." In his opinion, it possesses the features of such, and is therefore a ready reference for the busy practitioner, the laboratory technician, and the research worker. Facts rather than theories are the authors' goal.—[*The Infectious Diseases of Domestic Animals with Special Reference to Etiology, Diagnosis, and Biologic Therapy*. By William Arthur Hagan, D.V.M., D.Sc., professor of bacteriology and dean of the faculty, New York State Veterinary College, Cornell University; and Dorsey William Bruner, D.V.M., Ph.D., professor of bacteriology, New York State Veterinary College, Cornell University. Cloth. Illustrated. 920 pages. Comstock Publishing Company, Inc., Ithaca, N. Y. 1951. Price \$8.00.]

THE NEWS

Last Minute Notes on the Milwaukee Convention August 20-23, 1951

DON'T WAIT ANY LONGER TO MAKE HOTEL RESERVATIONS

Although most of the leading Milwaukee hotels are booked solid for the convention, good accommodations are still available. This is going to be a great meeting—one that a progressive veterinarian can not afford to miss—and there is still time to make reservations if you have not already done so. Use the hotel form on advertising page 41 of this issue. In the event that hotels of your choice are unable to accept your reservation, the Milwaukee convention Bureau will arrange other suitable accommodations at a hotel approved by the Committee on Local Arrangements.

DRIVING FROM THE EAST?

If you are driving to the convention from any place east of Milwaukee and want to take a short, refreshing boat trip before or after the meeting, here is a suggestion: The Pere Marquette railroad ferry will transport you, your family, and

your car between Ludington, Mich., and Milwaukee. Boats sail from Ludington every day at 5 a.m., 1 p.m., and 9 p.m. (EST), arriving in Milwaukee at 10:30 a.m., 6:30 p.m., and 2:30 a.m. (CST), respectively. One-way fare per person is \$3.80, including tax, and there is a charge of \$6.44 for your automobile. Reservations should be made at least ten days in advance. The address is: Pere Marquette Railroad Ferry, 163 W. Jackson Blvd., Chicago. Reservations also may be made at the local Pere Marquette office in Milwaukee.

TRAVEL AGENCY WILL HELP PLAN POST-CONVENTION TRIPS

A representative of Happiness Tours of Chicago, which has successfully handled travel planning for previous AVMA conventions, will be in attendance throughout the meeting to give registrants personal assistance in arranging post-convention trips or special vacation tours to any place in the United States. This will be a convention service for the benefit of members who want to make last-minute arrangements for travel or vacations.

SUNDAY REGISTRATION ADVISED

To avoid the Monday morning crowd, plan to arrive in Milwaukee and register for the convention on Sunday, August 19. The registration desk at the Auditorium will open at 12:30 p.m. on Sunday and remain open until evening. By registering ahead of time, you will be able to spend an enjoyable hour in the exhibits on Monday morning before the Opening Session. There will be 80 commercial and educational exhibits, all of which will open at 8:30 a.m. Monday, so plan to allow yourself several hours during the meeting to see them all.

REMEMBER "GEMÜTLICHKEIT" ON MONDAY, AUGUST 20

For an evening of fun, good food, and unusual entertainment, be sure to attend the *gemütlichkeit* (ge mit' lickh kite)—meaning good fellowship—in the Crystal Ball Room of the Schroeder Hotel, beginning at 9:00 p.m., Monday, August 20. This is part of the convention program and it will be staged in typical Milwaukee style, with the kind of food and beer you would expect on a German picnic, music by Heinie and his band, group singing, and everything else needed for an evening of good fellowship. It's the place to come to get



The St. Croix forms the boundary between Wisconsin and Minnesota at Interstate Park.

acquainted with everyone at the convention, and all you need for admission is your registration badge. Also plan to attend the other general entertainment features: veterinarians' night at the Wisconsin State Fair on Tuesday and the alumni dinners on Wednesday, followed by the president's reception and dance.

Chicago Veterinary College, Class of 1910

There will be a reunion of the Chicago Veterinary College class of 1910 on Tuesday evening, August 21, during the AVMA convention in Milwaukee.

S/JOSEPH S. BARBER.

Chairmen, State Ethics Committees To Meet

The chairman or a representative of the ethics committees of all state or constituent associations is urged to attend a meeting of the AVMA Ethics Committee in Room D at the Milwaukee Auditorium at 4:30 p.m., August 20, during the AVMA convention.

S/S. W. HAIGLER, *Chairman,*
AVMA Ethics Committee.

Convention Civil Defense and Military Conference Program Enlarged

Dr. James C. Sargent, M. D., chairman of the American Medical Association's Council on National Emergency Medical Service and a member of the Rusk Committee will be the keynote speaker at the military-civil defense conference scheduled for 2:00 p.m., Aug. 23, 1951, the last afternoon of the AVMA convention in Milwaukee. Dr. Sargent will deliver a statement on the needs for veterinarians that will have the approval of the Rusk Committee, which has recently been made part of the Office of Defense Mobilization. Similar statements pertaining to medical and dental personnel have been delivered at appropriate meetings of these professions.

In addition to Dr. Sargent, the speakers will include Brig. Gen. J. A. McCallam, chief, Veterinary Division, Surgeon General's Office; Col. R. C. Eanes, chief medical officer, National Headquarters Selective Service; Drs. M. R. Clarkson, special assistant for defense for the Agricultural Research Administration; Asa Winter, veterinary consultant to the Health Resources Office; W. R. Krill, chairman, AVMA Emergency Advisory Committee and member of Healing Arts Educational Advisory Committee to Selective Service; Martin Baum, consultant, Food and Milk, Health and Special Weapons Defense Division, Federal Civil Defense Administration; C. H. Pals, assistant chief, Meat Inspection Division, BAI; H. G. Geyer, chief, Division of Animal Industry, Ohio; J. R. Porteus, federal veterinarian in charge, BAI, New Jersey. Dr. J. G. Hardenbergh, AVMA executive secretary and consultant to National Advisory Committee to Selective Service, will act as chairman for the conference.

Dr. Norvin C. Kiefer, director, Health and Special Weapons Defense Division, Federal Civil

Defense Administration, will summarize the discussion and suggest future activities to be undertaken relative to civil defense planning and organization. Following Dr. Kiefer's discussion there will be an opportunity for general discussion.

Secretaries, Editors, and Public Relations Workers Will Meet in Milwaukee

Approximately 100 secretaries, editors, and public relations workers from veterinary medical organizations all over North America are expected to attend the joint conference on Sunday, Aug. 19, 1951, preceding the opening of the AVMA convention. This will be the first joint conference of its kind ever held. The morning program, beginning with a coffee-and-donut opener at 9:00, will be devoted to subjects of mutual interest to association secretaries, editors, and public relations workers; in the afternoon, these three groups will hold separate sessions covering their specific interests. All sessions will be at the Schroeder Hotel.

After a welcoming address by President W. M. Coffee, the morning program will feature a symposium on "Doing a Three-in-One Job," in which three speakers will discuss association secretaries' responsibilities with special attention to editorial and public relations interests. The operations of one of the largest state organizations, the California State Veterinary Medical Association, will be related by Dr. E. E. Jones of San Gabriel, Calif. Dr. S. D. Merrill, secretary of the small but progressive Maine Veterinary Medical Association will report on the secretary's job when performed as an extra-professional activity. Mr. James O. Kelly, executive secretary of the Milwaukee County Medical Society, will speak about the activities of a full-time lay executive secretary of a medical society.

Another highlight of the morning program will be a "Public Relations Problem Clinic," with Dr. R. E. Ruggles, Moline, Ill., as moderator and the above speakers and Dr. A. H. Quin, AVMA Public Relations Committee chairman, taking part.

The entire group will be guests of the AVMA at a luncheon where Mr. W. D. Knox, editor of *Hoard's Dairyman*, will be guest speaker.

Afternoon sessions will begin at 2:00 and close at approximately 4:30.

Women and Children Urged To Participate in Convention Program

A busy program is being planned for all women and teenagers attending the AVMA convention in Milwaukee this month. And we hope that all the wives of veterinarians will come with their husbands (and bring their families) for a grand vacation "stop-over" in Milwaukee. Reliable baby-sitter service will be available for all children under teenage.

Special events planned for wives include a tea, luncheons, tours, and a style show. The women will attend with their husbands a *gemutlichkeit*, an evening at the Wisconsin State Fair, the alumni dinners, and the president's reception and dance.

Special teenage events will include tours of the zoo and park, a visit to the Public Museum and Library, a splash party, and movies. The young people may also attend the *gemutlichkeit* and the state fair with their parents.

S/MRS. ALTON I. MOYLE, *Chairman, Publicity, Women's Activities Committee.*

Lapinized Hog Cholera Vaccines To Be Discussed at Milwaukee Convention

Following publication of the article, "Now We Can Eradicate Hog Cholera" by F. J. Keilholz in the May, 1951, issue of *Country Gentleman*, the AVMA office received a number of requests from members for more information about the new lapinized vaccine discussed in the article. Referred to as making possible the eradication of "the No. 1 killer of hogs," veterinarians want to know more about the product, its nature, availability, and conditions under which it will be used.

Since these details have not been announced by the commercial producers of the new vaccines (it is understood that more than one type will be produced), plans were made some time ago to have as much basic information as possible presented to veterinarians attending the Milwaukee convention. Arrangements were not completed in time for inclusion in the program published in the July JOURNAL but it can now be announced that a paper will be presented before the General Practice Section on Monday afternoon, August 20. Dr. James A. Baker, director of the Virus Research Institute at Cornell University, will speak on "The New (Lapinized) Hog Cholera Vaccines."

Dr. Baker will be remembered as presenting the results of his early research on lapinized hog cholera virus before the general session of the AVMA convention in Cincinnati in 1947. The paper was entitled "Attenuation of Hog Cholera Virus by Serial Passage in Rabbits" and was published in the December, 1947, JOURNAL (pp. 503-505).

Because of his early studies on the adaptation of viruses such as rinderpest and hog cholera to laboratory animals, making possible the production of attenuated vaccines for immunization of the natural hosts of these diseases, Dr. Baker is highly qualified to inform veterinarians about the recent developments in hog cholera immunization which are attracting widespread attention because of publicity about them in lay publications. While the commercial development of the lapinized vaccines is a new development that may have far-reaching effects, the

basic research was made known to veterinarians at their national convention four years ago this month.

First Executive Committee of House of Representatives Elected

One of the amendments to the Administrative By-Laws adopted last year provided for an executive committee of the House of Representatives as recommended by President Zepp. Because it was not feasible to have the election of the first such committee during the House session at Miami Beach, it was agreed that the executive secretary should work out the details and then conduct the election by mail.

Accordingly, on April 10 nominating ballots were mailed to delegates of constituent associations on which the names, fields of professional work, and tenures of delegates were listed. Delegates were asked to vote for the candidates of their choice in the six fields of work specified in the amendment (see the JOURNAL, July, 1950, pp. 69-70, Proposal No. 6).

The nominating polls closed on May 10 and a board of tellers certified the three candidates receiving the highest number of votes in each category. Ballots containing these names were then mailed to delegates for final election of members of the Executive Committee of the House which will function this year as provided in the new by-law. The seven members are:

LARGE ANIMAL PRACTICE

Dr. J. W. Harrison, 1-year term.

Dr. P. G. MacIntosh, 3-year term.

Dr. J. T. Schwab, 3-year term.

SMALL ANIMAL PRACTICE

Dr. A. G. Misener, 2-year term.

TEACHING AND RESEARCH

Dr. H. E. Kingman, Sr., 2-year term.

FEDERAL OR STATE GOVERNMENT REGULATION SERVICE

Dr. A. A. Husman, 3-year term.

ARMED FORCES, USPH, ETC.

Brig. Gen. J. A. McCallam, 1-year term.

Succeeding elections of members will take place at the annual sessions of the House.

Committee members will select a chairman who will attend the annual meeting of the Executive Board at AVMA headquarters on August 15-17, 1951, before going to Milwaukee for the House of Representatives session on Saturday, August 18, which precedes the opening of the Eighty-Eighth Annual Meeting on Monday, August 19.

Proposed Amendments to Constitution and Administrative By-Laws

The following amendments which were presented at the 1950 annual meeting of the House of Representatives (see "Proceedings Book,"

1950: 356, 376) will be submitted to the House for final action at the annual meeting in Milwaukee, Wis., Aug. 18, 1951. They are published again for the information of the membership and in accordance with Section 3, Article IX of the Constitution so that final action can be taken this year.

Amendments Presented in 1950

AMENDMENT No. 1

To re-define General Membership, present paragraph (b) of Article III, Constitution, is to be replaced by the following:

b) *General Membership*.—The general membership, otherwise known as the active membership, shall consist of graduates of colleges of veterinary medicine who have been duly elected in the manner specified in the By-Laws.

[Purpose.—To remove ambiguities and detailed membership requirements from the Constitution. Detailed requirements are covered in the proposed amendments to the By-Laws.]

AMENDMENT No. 2

To include a definition of Life Membership, present paragraph (d) of Article III, Constitution, is to be replaced by the following:

d) *Life Membership*.—The life membership shall consist of members who have been so designated in accordance with the Administrative By-Laws.

[Purpose.—To provide a new membership category in the Constitution as defined in the appropriate section of the By-Laws. Requirements for life membership are defined in new proposal No. 10 as Section 6 of Article X of the By-Laws.]

AMENDMENT No. 3

To amend present paragraph (d) Article III, Constitution, and replace it with paragraph (e) Article III, Constitution, so that it will read as follows:

Student Chapter Membership.—The student chapter membership shall consist of members in good standing of the student chapters officially chartered by the Association and maintained in accordance with the Administrative By-Laws.

[Purpose.—To make the references to student chapter membership uniform throughout the Constitution and Administrative By-Laws.]

AMENDMENT No. 4

To amend Section 2, Article IV, Constitution, relating to state, territorial, and provincial veterinary associations so as to read as follows:

Section 2.—The term "state, territorial and provincial association" shall be understood to mean the principal veterinary organization of any state of the Union, territorial possession of the United States including the District of Columbia, and provinces of the Dominion of Canada, whose membership requirements are equal to those of the American Veterinary Medical Association.

[Purpose.—To make this section compatible with Section 1, Article IV, in so far as membership requirements of the constituent associations are concerned.]

New Proposals

The following new proposals for amendments to the Administrative By-Laws were approved by the Executive Board at its winter meeting for submission to the House of Representatives for final action at the annual meeting of the House Aug. 18, 1951, in Milwaukee, Wis. They are published for the information of the membership and in accordance with Section 3, Article XVIII, of the Administrative By-Laws.

NEW PROPOSAL No. 1

To amend Section 2, Article X, of the Administrative By-Laws relating to active members by replacing the present Section 2 with the following:

Section 2.—Active members, or the general membership, shall consist of graduates of colleges of veterinary medicine in the United States and Dominion of Canada that were approved by the Council and/or Committee on Education at the time of the applicant's graduation, or of graduates of foreign veterinary colleges that are approved by the Executive Board for membership purposes, and graduates of veterinary colleges formerly conducted in the United States which are approved by the Executive Board for membership purposes.

[Purpose.—To clearly define the schools from which graduates are eligible for membership and to place the responsibility for designating acceptable applicants upon the Executive Board.]

NEW PROPOSAL No. 2

To replace present paragraph (a) of Section 2, Article X, Administrative By-Laws, with the following:

a) *Election to Active Membership*.—Candidates for membership shall present an application to the executive secretary on a special form approved by the Board of Governors. The form shall state the applicant's name, age, address, education (school and year of graduation), and work in which the applicant is engaged. Applicants residing within the jurisdictional limits of a constituent association, except personnel of the Veterinary Corps and the United States Public Health Service, must obtain the certification of the secretary of the constituent association that has jurisdiction over the area in which the applicant is engaged in the pursuit of his profession, that the applicant has applied for or is a member in good standing of that constituent association. Applications from applicants who have only applied for membership in a constituent association shall be held in abeyance until notice is received from the secretary of said constituent association that the applicant is a member in good standing of that constituent association.

Applicants residing outside the jurisdictional limits of the constituent associations shall obtain the endorsement, on the application, of two members who know the applicant, one or preferably both of whom reside in the same country as the applicant.

The American Veterinary Medical Association reserves the right to reject the application of any member of any constituent association. (As amended at the 85th Annual Meeting, Aug. 16-19, 1948.)

[Purpose.—To clearly define the eligibility of applicants for membership relative to their membership in a constituent association.]

NEW PROPOSAL No. 3

To revise paragraph (b) of Section 2, Article X, by having paragraphs, 1 and 2, under (b) which pertain to the listing of applicants in the JOURNAL, read as follows:

1) The names of applicants residing within the jurisdictional limits of the constituent associations shall be published once in the JOURNAL.

2) Notice of all applications from applicants residing outside of the jurisdictional limits of the constituent associations shall be published in the JOURNAL for two successive months. The first notice shall give the applicant's full name, school and year of graduation, post office address, and the names of his endorsers. The applicant shall be declared elected and so notified thirty days after the final notice has been published, provided that, in the meantime, no objection to his election has been filed in writing. Objections to an applicant's election shall be subject to review and action by the Executive Board and decisions thereon shall be contained in the report of the Board to the House of Representatives. (As amended at the 78th Annual Meeting, Aug. 10-15, 1941.)

[Purpose.—To avoid unnecessary listings of names of applicants who are already members of constituent associations and save space in the JOURNAL.]

NEW PROPOSAL No. 4

To substitute the following for present paragraph (c) of Section 2, Article X, Administrative By-Laws, which relates to the educational requirements of applicants:

c) *Educational Requirements.*—The "Essentials of an Acceptable Veterinary School" as defined by the Council on Education, or the accepted standards for an approved school at the time of the applicant's graduation, shall be considered the educational requirements of applicants, except for: (1) graduates of veterinary colleges formerly conducted in the United States, and (2) graduates of foreign veterinary colleges which have been approved for membership purposes by the Executive Board.

[Purpose.—To remove unnecessary detail in the By-Laws by referring to the "Essentials of an Acceptable Veterinary School" as prepared by the

Council on Education and to delegate to the Executive Board the final decision on applicants who are not graduates of an approved school.]

NEW PROPOSAL No. 5

To substitute for the present paragraph (b), of Section 3, Article X, Administrative By-Laws, which pertains to dropping members from the AVMA and constituent associations, the following paragraph which was inadvertently omitted from the present printing of the By-Laws:

b) Members who have not paid their annual dues by April 1 of the current year shall be dropped from the subscription list of the JOURNAL, in compliance with postal regulations governing the mailing of second class matter.

[Purpose.—To reinstate this paragraph in the By-Laws relative to discontinuing the mailing of JOURNALS to members who are in arrears in their dues payment.]

NEW PROPOSAL No. 6

To amend paragraph (g), Section 3, Article X, Administrative By-Laws so that it will read as follows:

g) The JOURNAL shall be mailed only to members in accordance with section 3, paragraph (b) of this article and, by subscription, to reputable research laboratories, libraries, and schools; individuals and other institutions desiring the JOURNAL must be vouched for by the respective constituent associations.

[Purpose.—To make paragraph (g) refer to above paragraph (b) instead of paragraph 6.]

NEW PROPOSAL No. 7

Add a new paragraph (h) to Section 3, Article X, Administrative By-Laws, which relates to the dropping of members from the AVMA and constituent associations, to read as follows:

h) When constituent associations adopt reciprocity of membership with the Association (i.e., accept applications only from applicants who are, or who have applied for, membership in the American Veterinary Medical Association, and drop members from their association when they are dropped from membership in the American Veterinary Medical Association), the Association will also drop from its membership any member who is dropped from the constituent association when so notified by the secretary of the constituent association. However, whether a constituent association has adopted reciprocity of membership or not, when members are expelled or dismissed from a constituent association for reasons of unethical conduct or other behavior detrimental to the profession, they will also be dropped from membership in the American Veterinary Medical Association when the executive secretary is so notified by the secretary of the constituent association.

[Purpose.—To clarify the relationship of mem-

bership in a constituent association to AVMA membership and to make reciprocity of membership possible.]

NEW PROPOSAL NO. 8

To delete Section 4, Article X, Administrative By-Laws, and replace with the following:

Section 4.—Student Chapter Members: (a)

A student of an approved college of veterinary medicine which has a student chapter of the American Veterinary Medical Association may become a student chapter member by maintaining membership in his local student chapter. Student chapter members are entitled to all the privileges of active members at the annual session, except the right of franchise, and shall be furnished an official badge without payment of the registration fee.

[Purpose.—To make the reference to student chapter members uniform throughout the Constitution and Administrative By-Laws. Provisions of present Section 4 are covered in New Proposal No. 2.]

NEW PROPOSAL NO. 9

To transfer paragraph (a) of Section 5, Article X, Administrative By-Laws, to Section 4 and make it paragraph (b), and to make the wording uniform relative to student chapter members, the following changes are necessary (changes are in italics):

b) *Student Chapter Members.*—*Student chapter members recommended as having been members in good standing for two years in their respective student chapters and who are vouched for by two members of the AVMA may be admitted to membership without the payment of the membership fee, provided the applications are filed within thirty days after the date of their graduation. To retain membership in the Association, members admitted under these provisions from student chapters must, within a period of three years following graduation, join a constituent association.*

[Purpose.—To make paragraph (a) of Section 5 a subsection of the Section 4 on student chapter membership instead of a subsection of the honorary membership paragraph.]

NEW PROPOSAL NO. 10

To define life members, a new Section 6, of Article X, Administrative By-Laws, has to be added as follows:

Section 6.—Life Members: Members who have been in good standing in the Association for twenty-five years and who are not less than sixty-five years of age, and who, in the opinion of the Executive Board, should be relieved of further payment of dues, may be designated as life members, upon recommendation of the Executive Board and a majority vote of the House of Representatives. While life members may not hold office, they shall be allowed to participate in all regular meetings of the association, and shall be exempt from payment of dues.

STUDENT CHAPTER ACTIVITIES

Kansas Chapter.—The following officers served the Kansas State College Student Chapter of the AVMA during the spring term of the 1950-1951 school year: Howard Newkirk, president; Jack Savage, president-elect; James Brown, vice-president; Joseph Curry, secretary; John Thomas, marshal; and Jack Russell, critic.

Guest speakers at the meetings held during this semester included Drs. J. A. McCain, president of Kansas State College; the Reverend E. Russell Lynn; Dr. S. L. Stewart, Olathe; T. Crispell, Olathe; and D. Pickett, Kansas City, Mo.

Seniors who spoke at the meetings were Ed Moore, Robert McNabb, Bill Beckenhauer, Robert Hodgson, and Phillip DePuy.

On May 15, the following officers were elected to serve for the fall term: Jack Savage, president; Bobbie Steele, president-elect; Richard Claybaker, vice-president; William Jones, secretary; Arthur Beat, treasurer; Lowell Breedon, marshal; and J. G. Gross, critic.

Harvey Arand was student council representative from the veterinary school; Robert McCaustland will serve in this capacity during the next school year. Other campus honors included: Alpha Zeta, honorary agriculture fraternity—Harvey Arand, W. Beckenhauer, J. Brown, R. Frey, D. Goetsch, B. Meredith, R. Mosier, R. McNabb, D. Oshel, L. Otto, J. Savage, H. Schoonover, B. Steele, and R. Swart; Alpha Zeta Award—N. Wolf; Phi Kappa Phi—C. Hunter, R. McNabb; Borden Award and runners-up—Robert McNabb, H. Weeks, C. Hunter, and R. Warren; Women's Auxiliary to the state V.M.A.—Ed Moore; state V.M.A. award, R. Warren (first) and C. Hunter (second); Blue Key—B. Steele, R. McCaustland, H. Arand, and J. Hudelson; Varsity Letter Men—D. Carr, W. Boley, D. Holder, W. Stuart, R. Miller, F. Frick, L. Otto, W. Pollock, R. Bogue, E. Gill.

s/J. CURRY, Secretary.

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Michigan Chapter.—A review of the meetings and activities of the Michigan State College Student Chapter of the AVMA for the spring term of 1951 follows:

Dr. L. T. Dawe, Capac, addressed the group at the April 12 meeting.

On April 24, the following awards were presented: the Borden Award (\$300) to James O. Hughson, for highest scholastic standing; the Michigan State Veterinary Association Prize (\$25) to Wilford Davis, for second highest scholastic standing; the Veterinary Faculty Prize (\$25) to Thomas Blackburn, second year student who during his first year carried over 45 credits and earned the highest average;

Women's Auxiliary to the AVMA Prize (\$25) to Adolf Weinacker, senior most outstanding in special contribution which advanced the standing of the veterinary school on the campus.

On May 3, **Captain L. F. Jennings**, Fort Custer, Mich., discussed the Army Veterinary Corps. **Dr. C. D. Smith** addressed the group on May 17, and the annual picnic was held May 24.

s/JOHN L. NORTON, *Secretary*.

Missouri Chapter.—**Dr. A. H. Quin** addressed the University of Missouri Student Chapter of



Float, constructed by freshmen, which won first place in annual Farmer's Fair Parade.

the AVMA on May 14, and a film "Ye Olde and the New" was shown.

New officers elected at this meeting are Theophil H. Brune, president-elect; Thomas J. Omohundro, vice-president; Harry C. Eschenroeder, secretary; and Kyle C. Kent, treasurer.

A float constructed by freshmen members of the chapter won first place in the annual Farmer's Fair Parade.

s/H. C. ESCHENROEDER, *Secretary*.

Ohio Chapter.—The Ohio State University Student Chapter of the AVMA enjoyed a successful series of meetings during the first half of the 1950-1951 school year under the capable leadership of Mark Davenport, president; Richard Tully, vice-president; Roy DeMotte, secretary; and Robert Lackey, treasurer.

Speakers at these meetings included, **Dr. C. D. Van Houweling**, assistant executive secretary of the AVMA; **Dr. Preyor**, Ohio State University Medical College; and **Dr. Floyd Faust** (D.D.), Broad St. Church of Christ, Columbus, Ohio.

A panel discussion composed of various department chairmen at the University on "How the Veterinary Profession Could be Improved" was an interesting feature at one of the meetings.

s/THOMAS W. FREAS, *Secretary*.

WOMEN'S AUXILIARY

Michiana Auxiliary.—The Women's Auxiliary to the Michiana Veterinary Medical Association met at the Harvey House in Constantine, Mich., on April 12. After dinner, the women met at the home of Dr. and Mrs. Roy Wescott. President Marion Fishler conducted the business meeting, after which Mrs. Kenneth Lake demonstrated the proper care of the skin and the use of make-up.

s/MRS. (D. L.) HELEN W. MILLER, *Secretary*.

APPLICATIONS

First Listing

ARNABOLDI, ALLAN C.

Box 262, Medina, N.Y.

D.V.M., New York State Veterinary College, 1943.

Voucher: J. S. Halat.

BILLER, RAYMOND R.

137 W. Washington St., Wausau, Wis.

D.V.M., Iowa State College, 1949.

Voucher: B. A. Beach.

BINKS, H. E.

P.O. Box 230, Lawrenceburg, Ky.

D.V.M., Ontario Veterinary College, 1949.

Voucher: Ross Brown.

CARLSEN, JOHN A.

2140 S. 61st St., Omaha, Neb.

D.V.M., St. Joseph Veterinary College, 1922.

Voucher: L. T. Hopkins.

CLEARLY, T. UPTON

8835 Ridge Ave., Philadelphia 28, Pa.

D.V.M., Alabama Polytechnic Institute, 1939.

Voucher: R. C. Snyder.

CLIFFORD, DONALD HANSON

Angell Memorial Animal Hospital, 180 Longwood Ave., Boston 15, Mass.

D.M.V., L'Ecole de Médecine Vétérinaire de la Province de Québec, 1950.

Voucher: C. Lawrence Blakely.

CULLISON, JAMES M.

202 S. First St., Charleston, Mo.

D.V.M., Iowa State College, 1938.

Voucher: J. L. Wells.

DEMLER, JOHN N.

Fredonia, Wis.

D.V.M., Chicago Veterinary College, 1914.

Voucher: B. A. Beach.

DENNEWITZ, HOMER A.

1311 Apple St., Silver Spring, Md.

D.V.M., George Washington University, 1918.

Voucher: J. D. Gadd.

DIEBEN, CASPAR P. A.

Caixa Postal 599, Campinas (E.S.P.), Brazil

Veeartsenijkundige Hogeschool, Utrecht, 1916.

Vouchers: D. L. de Blicke and C. D. Van Houweling.

- DONAT, LAWRENCE C.
Bloomfield, Neb.
D.V.M., Kansas State College, 1935.
Voucher: Ordella Geisler.
- FARRELL, DON B.
1026 W. Division St., Arlington, Texas.
D.V.M., Texas A. & M. College, 1948.
Voucher: E. A. Grist.
- HARRIS, KENNETH G.
14117 Fenton Road, Fenton, Mich.
D.V.M., Michigan State College, 1945.
Voucher: R. A. Runnells.
- HODGES, RICHARD
317 E. Main St., Ranger, Texas.
D.V.M., Texas A. & M. College, 1949.
Voucher: E. A. Grist.
- HOYT, KENNETH R.
P. O. Box 343, Ellensburg, Wash.
D.V.M., Washington State College, 1935.
Voucher: J. L. Ellis.
- HUCKLE, JOHN J.
Box 272, Charlottesville, Va.
D.V.M., New York State Veterinary College, 1943.
Voucher: W. L. Bendix.
- GALLARDO R., ANTONIO
Santa Rosa 31 Poniente, Muzquiz, Coahuila, Mexico.
D.V.M., Veterinary Medicine School, Mexico City University, 1941.
Vouchers: E. Campos Nieto and Henry A. Tillett.
- KROHN, JOHN R.
210 Park Drive, Cloquet, Minn.
D.V.M., Ohio State University, 1938.
Voucher: B. S. Pomeroy.
- KUESTER, W. F.
101 W. Marshall, Rice Lake, Wis.
D.V.M., McKillip Veterinary College, 1916.
Voucher: B. A. Beach.
- LARSON, HERBERT J.
124 S. Vine St., Fergus Falls, Minn.
D.V.M., Chicago Veterinary College, 1918.
Voucher: B. S. Pomeroy.
- LEIGHTY, WILLIAM R.
Madison, Minn.
M.D.V., McKillip Veterinary College, 1911.
Voucher: B. S. Pomeroy.
- LIST, EDWARD M.
Norborne, Mo.
D.V.M., Michigan State College, 1943.
Voucher: J. L. Wells.
- McMULLIN, WILLIAM
Rt. 2, Box K 20, Hammond, La.
D.V.M., Alabama Polytechnic Institute, 1948.
Voucher: R. B. Lank.
- MARIASSY, BELA
4030 East McDowell Rd., Phoenix, Ariz.
D.M.V., Hungarian University of Agricultural Sciences, 1936.
Voucher: Donald L. Fox.
- MARTIN, HARRISON SYKES
N.Y.Q.M. Procurement Agency, 111 East 16th St., New York 3, N.Y.
D.V.M., Texas A. & M. College, 1944.
Vouchers: Winthrop E. Brielman and John O. Wilson.
- OSTEEN, A. J.
Rt. 5, Box 29, Charleston, S. Car.
D.V.M., University of Georgia, 1928.
Voucher: R. A. Mays.
- PETERS, R. HAGEN
Morgantown Rd., Natchez, Miss.
D.V.M., Alabama Polytechnic Institute, 1948.
Voucher: John A. Randle.
- PFAFF, C. K.
303 E. State St., Peoria 2, Ill.
D.V.M., Iowa State College, 1931.
Voucher: A. G. Misener.
- PINTO C., JUAN ANTONIO
Cerro de Pasco Copper Corp., Pachacayo, Peru, S. A.
D.V.M., Universidad Nacional Mayor de San Marcos, 1948.
Vouchers: Douglas F. Watson and Alex Ramis M.
- PLUNK, LEONARD B.
Box 286, Athens, Ala.
D.V.M., Alabama Polytechnic Institute, 1949.
Voucher: I. S. McAdory.
- PUPPEL, JOHN D.
84-B N. Main, Cortland, N.Y.
D.V.M., Ohio State University, 1941.
Voucher: L. T. Hopkins.
- RADLOFF, M. D.
West Bend, Iowa.
D.V.M., Iowa State College, 1933.
Voucher: F. B. Young.
- RALSTON, NORMAN C.
Box 409, Mt. Pleasant, Texas.
D.V.M., Texas A. & M. College, 1945.
Voucher: E. A. Grist.
- RASMUSSEN, FREDERICK R.
936 E. Franklin, Glencoe, Minn.
B.V.Sc., Ontario Veterinary College, 1933.
Voucher: B. S. Pomeroy.
- SUTTEN, HARLEY H.
171 N. Upper, Lexington, Ky.
D.V.M., Michigan State College, 1949.
Voucher: Ross Brown.
- SUTTERBY, WILLIAM H.
P. O. Box 91, Natchitoches, La.
D.V.M., New York State Veterinary College, 1916.
Voucher: R. B. Lank.
- TANASUCARN, LECK.
201 Milford St., East Lansing, Mich.
D.V.M., Veterinary College of Bangkok, 1946.
Vouchers: R. D. Barner and C. S. Bryan.
- TAYLOR, JOHN W.
503 S. Monroe St., San Angelo, Texas.
D.V.M., Texas A. & M. College, 1938.
Voucher: E. A. Grist.

THOMPSON, CHARLES F.

Box 327, Pearsall, Texas.

D.V.M., Texas A. & M. College, 1943.

Voucher: E. A. Grist.

VARELA H., MARIO

Ganadera Dept., Cerro De Pasco Copper Corp.,
Pachacayo, Peru.

Facultad De Medicina Veterinaria Lima, 1950.

Vouchers: Douglas F. Watson and Tomas
Paredes J.

WILLIAMS, R. D.

405 Harward St., Pontiac, Ill.

D.V.M., Ohio State University, 1945.

Voucher: A. G. Misener.

WORTHINGTON, WILLIAM E.

Elm St., Nicholasville, Ky.

D.V.M., Ontario Veterinary College, 1949.

Voucher: Ross Brown.

Second Listing

AULET, ARTURO ALBAREDA, Calle C #710, Vedado,
Havana, Cuba.

BROWN, ELMER L., P.O. Box 285, Moose Jaw,
Sask.

COPPAGE, WILLIAM F., N. Haughton St., Williams-
ton, N. Car.

DOWNING, THEODORE O., Sixth Army Area Med-
ical Laboratory, 4735 East Marginal Way,
Seattle 4, Wash.

GRUSH, KENNETH W., 3070 E. 3rd Ave., Durango,
Colo.

HARRIS, BYRON D., 418 S. Montreal Ave., Dallas
& Texas.

HIGHT, ROBERT J., 820 Forrest Ave., Tempe, Ariz.

HOREL, HARVEY E., Augusta, Wis.

JACKSON, R. SCOTT, Veterinary Medical Bldg.,
Colorado A. & M. College, Fort Collins, Colo.

JONES, BARRINGTON R., 9115 Ogden Av., Brook-
field, Ill.

LEONARD, CHARLES W., 91 Cherokee St., Lafayette,
Ga.

LINDEN, BENJAMIN A., 41 Main St., New Ro-
chelle, N. Y.

LUEDTKE, RICHARD P., 907 West Fourth St.,
Dixon, Ill.

McCLURE, FRED K., 310 South Chestnut St.,
Clarksburg, W. Va.

MILO, HOWARD A., 1228 Biltmore Ave., Pittsburgh
16, Pa.

MOLINE, ERNEST N., 2051 E. Forest Dr., Talla-
hassee, Fla.

PRIOR, ROGER W., Shelburne Road, Burlington, Vt.

PHILLIPSON, MURRAY H., 1720 S. Main St., Las
Vegas, Nev.

RICKS, DANIEL H., State Board of Agriculture,
Capitol Bldg., Oklahoma City, Okla.

RINDELL, ARTHUR M., 297 Central Ave., Rochester
5, N.Y.

SANCHEZ-ESCOTO, FEDERICO, Avenida 12 esquina a
Calle 11, Ampliacion de Almendares, Marianao,
Cuba.

SMITH, IVAN, Edgar, Wis.

SPEAKER, R. T., Keota, Iowa.

TRENCH, HEBERT, School of Veterinary Medicine,
Cornell University, Ithaca, N. Y.

TURNER, JOHN EDGAR, Box 675, Gainesville, Ga.

WASHBURN, GLENN ALLEN, 5035 ASU, VFIS, Ft.
Benjamin Harrison, Ind.

WHITCOMB, OLIVER W., 535 Welch Ave., Ames,
Iowa.

WITTER, WAYNE R., 2660 Duke St., Alexandria,
Va.

WYKOFF, MATTHEW H., 1605th Med. Sq. APO
406, c/o P.M., New York, N.Y.

YOUNG, COLE J., JR., 131 Lee St., Decatur, Ala.

1951 Graduate Applicants

First Listing

The following are graduates who have recently received their veterinary degree and who have applied for AVMA membership under the provision granted in the Administrative By-Laws to members in good standing of junior chapters. Applications from this year's senior classes not received in time for listing this month will appear in later issues. An asterisk (*) after the name of a school indicates that all of this year's graduates have made application for membership.

Alabama Polytechnic Institute

All of the following applicants, with the excep-
tion of those otherwise noted, were vouchered by
Drs. R. S. Sugg and I. S. McAdory.

AUTREY, GEORGE M., D.V.M.

Rt. 3, Greenville, Ala.

BOONE, ROBERT V., D.V.M.

General Delivery, Geneva, Ala.

BOONE, WILLIAM L., D.V.M.

233 E. Glenn St., Auburn, Ala.

Vouchers: R. S. Sugg and A. M. Wiggins.

BOOZER, WILLIAM T., D.V.M.

Rt. 2, Jacksonville, Ala.

BOZEMAN, JENNINGS, D.V.M.

Dozier, Ala.

Vouchers: D. S. Folse and W. J. Gibbons.

BRUNTON, ADAM S., D.V.M.

Lindley Animal Hospital, P.O. Box 444, Vicks-
burg, Miss.

BULLOCK, GEORGE P., D.V.M.

2605 Bullock Drive, Durham, N. Car.

CALVIN, THOMAS H., D.V.M.

P. O. Box 624, Auburn, Ala.

Vouchers: F. A. Clark and J. F. Hokanson.

CHAMBLESS, JOHN H., D.V.M.

1201 S. Main St., Lexington, N. Car.

- CHANCELLOR, BOBBY A., D.V.M.
Macon, Miss.
Vouchers: R. S. Sugg and C. S. Roberts.
- CONAWAY, JOHN W., D.V.M.
Yadkinville, N. Car.
- CRESWELL, ALFRED M., D.V.M.
Neely Animal Clinic, Union City, Tenn.
- CROCKER, UNCAS T., D.V.M.
c/o O. L. Crocker, Trenton, Fla.
- CRYAR, W. ROSS, D.V.M.
213 North 15th St., Birmingham, Ala.
Vouchers: W. S. Bailey and J. E. Greene.
- DANTZLER, JOHN W., D.V.M.
308 Carolina Ave., N.W., Orangeburg, S. Car.
- DEAL, RAEFORD C., D.V.M.
P. O. Box 5, Conover, N. Car.
- DILLARD, AMOS D., D.V.M.
1342 S. Oates St., Dothan, Ala.
Vouchers: D. S. Folse and N. D. Connor.
- FINCHER, CURTIS R., D.V.M.
Rt. 2, Matthews, N. Car.
Vouchers: J. F. Hokanson and W. J. Gibbons.
- GAIL, THEODORE L., D.V.M.
Fairhope, Ala.
Vouchers: A. M. Wiggins and R. S. Sugg.
- GASKIN, ANGUS W., D.V.M.
719 E. 5th Ave., Florida, Ala.
Vouchers: J. E. Greene and D. S. Folse.
- GATES, JOHN R., D.V.M.
Helena, Ala.
- GRISWOLD, DANIEL P., JR., D.V.M.
714 S. 39th St., Birmingham 6, Ala.
Vouchers: R. S. Sugg and C. S. Roberts.
- HAMILTON, JAY G., D.V.M.
1402 Acklen Ave., Nashville, Tenn.
Vouchers: D. S. Folse and J. F. Hokanson.
- HAMILTON, RALPH, D.V.M.
768 S. Washington St., Russellville, Ala.
- HARRIS, MILFORD D., JR., D.V.M.
Box 1031, Opelika, Ala.
- HOCK, ROY D., D.V.M.
938 Esplanade Ave., New Orleans 16, La.
- HOLLINGSWORTH, ROY B., D.V.M.
Animal Hospital, Morristown, Tenn.
- HOLMES, JAMES L., D.V.M.
Ville Platte, La.
Vouchers: W. J. Gibbons and R. S. Sugg.
- HUNTER, WILLIAM K., D.V.M.
Tallahassee, Ala.
Vouchers: D. S. Folse and J. F. Hokanson.
- JONES, BASIL A., D.V.M.
107 Water St., Bristol, Va.
Vouchers: W. J. Gibbons and J. E. Greene.
- JONES, EARL M., D.V.M.
3623 5th Ave. South, Birmingham 6, Ala.
- JOSEY, F. HARRELL, D.V.M.
Reed Road, Starkville, Miss.
Vouchers: A. M. Wiggins and J. A. Schmitz.
- LANGFORD, JOHN R., D.V.M.
Box 804, Daytona Beach, Fla.
- LANIER, WORTH, D.V.M.
York, S. Car.
- LASTER, WILLIAM R., JR., D.V.M.
Rt. 11, Box 133, Birmingham 10, Ala.
- MCABEE, HARRY S., D.V.M.
Rt. 4, Box 355, North Little Rock, Ark.
- MCRABE, DANIEL H., D.V.M.
Box 125, Mount Vernon, Ga.
- MAUGHON, MAXWELL, D.V.M.
Gen. Del., Gallatin, Tenn.
- MINOR, E. D., JR., D.V.M.
Rt. 5, Clanton, Ala.
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 BRENNAN, BERNARD F., D.V.M., Kemptville, Ont.
 BRISSENDEN, L. A., D.V.M., Casselman, Ont.
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 CLARK, ELMER, D.V.M., Morden, Manitoba.
 CRAIG, GEORGE R., D.V.M., 27A Gore St., Perth, Ont.
 COTE, JOHN F., D.V.M., c/o Dr. J. R. Smith, Stouffville, Ont.
 CURRY, HILTON A., D.V.M., O'Leary, Prince Edward Island.
 DAVIS, JOHN D., D.V.M., 185 Crescent Rd., Toronto, Ont.
 DRAPER, DOUGLAS J., D.V.M., Division of Research, Department of Lands and Forest, Maple, Ont.
 ELLIOT, GEORGE M., D.V.M., 52 Stibbard Ave., Toronto, Ont.
 ELMES, LEONARD, D.V.M., 7 Summit Ave., Galt, Ont.
 FOWLER, JOHN G., D.V.M., Rt. 2, Armstrong, B.C.
 GODARD, ARTHUR J., D.V.M., 609 Heatley Ave., Vancouver, B.C.
 GRAHAM, J. E. BLAKE, D.V.M., c/o Walter Baldwin, Cooksville, Ont.
 GREEN, ROBERT A., D.V.M., Petrolia, Ont.
 GREENWAY, JOHN A., D.V.M., Acme, Alta.
 GRICE, HAROLD C., D.V.M., Howard Ave., Roseland, Ont.
 HAMILTON, JOHN G., D.V.M., 433 Bleecker Ave., Belleville, Ont.
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 HAWKES, ARTHUR, B., D.V.M., 4 Carleton St., Yarmouth, Nova Scotia.
 HAWKINS, CARMAN F., D.V.M., 557 Canterbury St., Woodstock, Ont.
 HENDRY, GLEN R., D.V.M., Summerside, Prince Edward Island.
 HICKS, ERIC S., D.V.M., Mouth of Keswick, York County, N.B.
 HOLMES, ELDRED R., D.V.M., Woodbridge, Ont.
 HORNEY, FREDERICK D., D.V.M., Ontario Veterinary College, Guelph, Ont.
 HUNTER, HAROLD J., D.V.M., Veterinary Br., Department of Agriculture, Regina, Sask.
 IRWIN, RICHARD J., D.V.M., Flesherton, Ont.
 JUNST, HARVEY H., D.V.M., Prince Albert, Sask.
 KEMP, GRAHAM E., D.V.M., 7544 Heather St., Vancouver, B.C.
 KING, DONALD P., D.V.M., Rt. 1, Oakville, Ont.
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 LAFERT, CHARLES R., D.V.M., 1107 Walker Rd., Windsor, Ont.
 LAKE, RANDOPH, D.V.M., Kipling, Sask.
 LAWSON, KENNETH F., D.V.M., Lakeview P.O., Peel County, Ont.
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 McANUFF, WILLIAM A., D.V.M., Minier, Ill.
 McCREA, JOSEPH E. R., D.V.M., Montague, Prince Edward Island.
 McDERMID, KENNETH A., D.V.M., Nottawa, Ont.
 McEWEN, KENNETH A., D.V.M., Rt. 2, Chatsworth, Ont.
 McKELLAR, JOHN D., D.V.M., 11 Queen St. W., Guelph, Ont.
 McQUINN, LESLIE E., D.V.M., Penobscis, Kings County, N. B.
 MACHELL, WILLIAM E., D.V.M., 400 Prince St., Tiro, N. S.
 MacKAY, JOHN A., D.V.M., New Glasgow, N. S.
 MACKEY, DENIS B., D.V.M., Grande Prairie, Alta.
 MADILL, KIMBALL R., D.V.M., Box 791, North Edmonton P.O., Alta.
 MARTYN, ELLWOOD, D.V.M., Rosthern, Sask.
 MEADE, EMERSON B., D.V.M., Rt. 3, Priceville, Ont.
 MELANSON, HENRY P., D.V.M., Box 444, Bathurst, N. B.
 MISENER, ELTON H., D.V.M., 6448 N. Clark St., Chicago 26, Ill.
 MOONEY, ALFRED H., D.V.M., Durham, Ont.
 MOORE, DONALD S., D.V.M., 263 Church St., Weston, Ont.
 MOREAU, ELIZABETH C. H., D.V.M., Vercheres, P.Q.
 MOUNTJOY, WILLIAM K., D.V.M., Brooklin, Ont.

- NEELY, HOWARD J., D.V.M., 40 Dundas Rd., Guelph, Ont.
- NEIL, JAMES W. H., D.V.M., 2010 N. Columbus Ave., Ottawa, Ill.
- O'NEILL, JAMES E., D.V.M., 96 Gerald Street, Charlottetown, P. E. I.
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- PERRY, DAVID A., D.V.M., Ontario Veterinary College, Guelph, Ont.
- PHILLIPS, NORMAN A., D.V.M., Boissevain, Manitoba.
- PICKETT, SYDNEY G., D.V.M., 125 Wesley Ave., Ottawa, Ont.
- REEVES, JOHN E., D.V.M., Hastings, Ont.
- SAUER, FRANK, D.V.M., Stouffville, R.R. 1, Ont.
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- SEWALL, THOMAS B., D.V.M., 1930-25 A Street, S.W., Calgary, Alta.
- SHAW, AUDREY B., D.V.M., 300 Jubilee Road, Halifax, N. S.
- SPIERS, CECIL J., D.V.M., R.R. 4, Calgary, Alta.
- SPENCE, CHARLES K., D.V.M., Cobden, Ont.
- SPRANKLE, GEORGE W., D.V.M., 105 Linwood Ave., Ardmore, Pa.
- STEWART, DOUGLAS W., D.V.M., 30 Albert St., N., Orillia, Ont.
- TAYLOR, JOHN R. E., D.V.M., 107 Waterloo St., East, Guelph, Ont.
- TIPPER, KENNETH J., D.V.M., Massey, Ont.
- WELLINGTON, JOSEPH W., D.V.M., Box 662, Reno, Nev.
- WHITE, ARNOLD H., D.V.M., 11 Lawrence Ave., W., Weston, Ont.
- WILBEE, ROY C., D.V.M., Fairlight, Sask.
- WINDREM, JOHN W., D.V.M., 231 Redpath Ave., Toronto, Ont.
- WYMAN, HERBERT R., D.V.M., 142 Evanson St., Winnipeg, Manitoba.
- State College of Washington***
- ADAMS, ARTHUR J., D.V.M., P.O. Box 93, Kent, Wash.
- ADAMS, H. MARVIN, D.V.M., 786 5th St., Astoria, Ore.
- ANDRESEN, JAMES W., D.V.M., Rt. 2, Box 50, Vancouver, Wash.
- BEAN, HOWARD E., D.V.M., 1318 Palm Ave., Seattle 6, Wash.
- BOE, NORRIS, D.V.M., Rt. 3, Pullman, Wash.
- BONALLO, HARRY B., D.V.M., Rt. 2, Coeur d'Alene, Idaho.
- BRINKMAN, DAVID C., D.V.M., Bayview Veterinary Hospital, Rt. 2, Box 759, Bremerton, Wash.
- BROSZ, HERBERT A., D.V.M., 702 Avenue D, Billings, Mont.
- CHILDS, CHARLES E., D.V.M., 159 Palm Ave., Highland, Calif.
- DEJONG, DENNIS H., D.V.M., Box 454, Lynden, Wash.
- DOST, FRANK N., D.V.M., Box 372, Harper, Wash.
- ELLWANGER, DONALD E., D.V.M., Clinton, Wash.
- FISHBACK, MALCOLM E., D.V.M., 1919 North Tyler, Tacoma, Wash.
- FOLLETT, NEIL V., D.V.M., 1204 Maiden Lane, Pullman, Wash.
- FRANK, FLOYD W., D.V.M., 701 Church St., Pullman, Wash.
- GANSBERG, CLARENCE F., D.V.M., Klamath Animal Hospital, Klamath Falls, Ore.
- GOULTER, ALLEN J., Jr., D.V.M., Ilwaco, Wash.
- HARCUS, ROBERT A., D.V.M., 17899 40th N.E., Seattle 55, Wash.
- HARTLE, DWIGHT C., D.V.M., 18 East Fifth, Tempe, Ariz.
- HYMAS, THEO. A., D.V.M., Rt. 1, Box 335, Tooele, Utah.
- ISBELLE, HARRY C., D.V.M., 2037 National Ave., San Diego 1, Calif.
- JOHNSON, DAVID W., D.V.M., Box 63, Davenport, Wash.
- KERSHAW, HYRUM W., D.V.M., 127 East 2nd North St., Rigby, Idaho.
- LEWIS, JAMES W., D.V.M., Bannock Animal Hospital, Rt. 2, North, Pocatello, Idaho.
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- MARBLE, DONALD W., D.V.M., P.O. Box 613, College Station, Pullman, Wash.
- MASON, CLARENCE G., D.V.M., Rt. 2, Ellensburg, Wash.
- MCGOUGH, STANLEY E., D.V.M., 117 North Tacoma Ave., Tacoma 3, Wash.
- MOORE, EARL W., D.V.M., 841 N.E. Broadway, Portland, Ore.
- MORGAN, PHILIP R., D.V.M., Enterprise, Ore.
- OHLSON, THOMAS W., D.V.M., 3006 Sylvan Ave., Oakland, Calif.
- PRENTICE, MARVIN M., D.V.M., 400 Colorado St., Pullman, Wash.
- PREIBER, JACK E., D.V.M., 7601 S. 135 Ave., Seattle 88, Wash.
- PRIOR, ROBERT L., D.V.M., Box 602, Prosser, Wash.
- REED, RAYMOND E., D.V.M., 1018 E. 4th St., McMinnville, Ore.
- RIGHTMIRE, WALLACE G., D.V.M., Snohomish, Wash.
- SANDBERG, DOUGLAS L., D.V.M., 1104 East Main, Puyallup, Wash.
- SLATER, ARNOLD CLYDE, D.V.M., Rt. 1, Box 381, Spanaway, Wash.
- SPRINKLER, LUCAS H., D.V.M., 1188 Hardcastle, Woodburn, Ore.

STRANDBERG, RUSSEL V., D.V.M., Pacific Veterinary Hospital, 2430 Meridian St., Bellingham 21, Wash.

SWANSON, ORIN G., D.V.M., Rt. 6, Box 500, Vancouver, Wash.

UGSTAD, GEORGE O., D.V.M., 810 West "B" St., Grants Pass, Ore.

VEITER, DONALD R., D.V.M., Rt. 2, Raymond, Wash.

WARD, VERNON, D.V.M., RFD 1, Mabton, Wash.

William H. Boyer
Shirley Bradshaw
Bernard F. Brennan
Leonard A. B. Brinsenden

Ellen M. Brown
Henry W. Burns
Laurence A. Campbell
Elmer Clark
Sidney J. K. Clayton

Eugene A. Costello
John F. Cote
George R. Craig
Hilton A. Curry
John D. Davis

James N. DiCola
Arthur F. Dolby
Douglas J. Draper
George M. Elliot

Leonard Elmes
John G. Fowler
Robert A. Green
John G. Hamilton

Carman F. Hawkins
Eric S. Hicks
Eldred R. Holmes
Frederick D. Horney

Harold J. Hunter
Richard J. Irwin
Harvey H. Just
Raymond W. Kennedy

Donald P. King
George H. Kingston
Charles R. Laforet

Randolph Lake
Kenneth F. Lawson
William J. Lennox
William M. Lyons

William E. Machell
Denis B. Mackey
Kimball R. Madill
Ellwood Martyn

Emerson B. Meads
Henry P. Melanson
Elton H. Misener
Alfred H. Mooney

Donald S. Moore
Elizabeth C. H. Mooreau
William K. Mountjoy

John A. MacKay
William A. McAnuff
Delmar J. McClean
Joseph E. R. McCrea

Kenneth A. McEwen
John D. McKellar
Carman J. McNary
Leslie E. McQuinn

Howard J. Neely
James W. H. Neil
Peter G. Oliver
James E. O'Neill

William A. Osborne
Garth W. Passey
David A. Perry
Norman A. Phillips

Sydney G. Pickett
Edward A. M. Pitt

COMMENCEMENTS

University of Toronto.—At the annual convocation at the University of Toronto, the following candidates received the D.V.M. degree.

With First Class Honors

Jeffrey Airey
Roland M. Armitage
Robert A. Beattie
Robert G. Beatty
Robert S. Brodey
Arthur J. Godard
John E. B. Graham
John A. Greenway
Harold C. Grice
Charles R. Hardy

Arthur B. Hawkes
Glen R. Hendry
Hubert L. Jasmin
Graham E. Kemp
Richard J. Ketchell
Greaham E. Louisy
William A. Mears
Kenneth A. McDermid
John W. Windrim

Kenneth R. Abbey
Lester L. Allen
Jack B. Auld
Albert B. Babcock

John B. Bennett
Walter J. Boddington
James A. Bondy
Edward J. Boothe

Graduating Class, 1951, School of Veterinary Medicine, Oklahoma A. & M. College



Front row (left to right)—Jack S. Ambrose, Glenn D. Willis, William C. Carter, M. Weldon Glenn, Raymond E. Henry, C. Mark Wilson, Leonard B. Carpenter, Roderick R. Parker.

Second row—Martin Y. Andres, Luther E. Wilcoxson, Sam H. Best, Jack L. Bostwick, James E. Cook, James O. DeFoe, Doyce D. Smith, Hubert M. Goins.

Back row—William E. Ryan, James O. Tucker, Solomon C. Gartman, Jorge A. Lanza, Alvin H. Dowdy, Austin W. Weedn, King S. Gibson, William L. Garner, Leo J. Voskuhl. (Thomas A. Ritchie is not shown)

Donald T. Ralph
John E. Reeves
Frank Sauer
Charles G. Scott
Charles M. Seal
Thomas B. Sewall
Audrey B. Shaw
Clarence W. Smith
Cecil J. Speirs
Charles K. Spence

George W. Sprankle
Douglas W. Stewart
Rodney Sylvester
John R. E. Taylor
Kenneth J. Tipper
Joseph W. Wellington
Arnold H. White
Roy C. Wilbee
Herbert R. Wyman

General Proficiency Prizes: Richard J. Ketchell, first; Robert G. Beatty, second; Hubert L. Jasmin, third.

Rosafe Farm Award for proficiency in the treatment of cattle diseases and keen interest in cattle breeding, Richard J. Ketchell.

W. J. R. Fowler Scholarship for interest in the prevention and treatment of equine diseases, Audrey B. Shaw.

Charles D. McGilvray Memorial Prize for diligence during the college course, Ellen M. Brown.

Women's Auxiliary to the AVMA Award for special contribution which advanced the standing of the veterinary college on the campus, Harvey H. Just.

Borden Award for honor standing, Emerson B. Meads.

The following awards were presented to members of the graduating class:

Andrew Smith Memorial Medal for the student of the graduating class deemed most proficient in both the theoretical and practical work during the undergraduate course, to Robert G. Beatty.

Graduating Class, 1951, School of Veterinary Medicine, Kansas State College



Top row (left to right)—J. W. Berchem, T. T. Long, O. E. Pfeifer, D. G. Kiger, P. A. Schafer, Jr., W. J. Stephenson, C. S. Douglass, Jr., J. P. Hinton, J. A. Chesnut, R. O. Hill, W. S. Boley, L. H. Holmes, R. J. Walters.

Second row—R. L. Hodgson, H. L. Weeks, R. A. Rea, J. W. Hart, J. P. Manning, Jr., D. Fockele.

Third row—R. M. Phillips, G. W. Theobald, H. C. Severson, P. L. Spencer, L. K. Otto, M. T. Szatelowicz, C. R. Lenz, I. J. Collinge, V. D. Lundstrom, E. M. Carlson, B. Meredith, R. L. Swart, S. E. Worl.

Fourth row—K. R. King, R. J. Brugger, D. E. Herrick, G. W. Porter, P. L. DePuy, D. D. Oshel, G. Bradbury, O. L. Kelsey, J. F. Hudelson, R. A. Couk, Jr., R. L. Warren, W. B. Grene, C. D. Lewis.

Fifth row—W. H. Burgin, E. A. Liebl, M. C. Rankin, M. B. Jared, L. Billingsley, R. W. McNabb, D. E. Kinyoun, J. T. Price, K. B. Ludwig, R. E. Dubin, E. J. Moore, F. M. Beam, D. E. Jackson.

Sixth row—J. J. Rexroat, C. F. Hall, R. A. Boyd, G. W. Bunyan, C. C. Hunter, D. B. Russell, W. H. Beckenhauer, T. J. Carleton, M. D. Sutter, C. M. Dudley, L. E. Evans, J. S. Jewell, R. C. Van Dyke.

Ayerst Award, for honor standing, Greaham E. Louisy.

The Holstein-Friesian Association of Canada Award for interest and practical ability in diseases of cattle, Robert G. Beatty.

The Canadian Army Veterinary Corps Award for honor standing, Robert A. Beattie.

Abbott Award for proficiency in the theory and practice of small animal medicine, Ellen M. Brown.

Ballard Award for essay on feeding of livestock, Richard J. Ketchell.

S/T. LLOYD JONES, *Acting Principal*.

AMONG THE STATES AND PROVINCES

Alaska

Rabies Threatens U.S. Troops in Alaska.—Rabies recently was diagnosed in the Anchorage area of Alaska for the first time, and the large number of semi-wild and homeless dogs constitute a real threat to the Armed Forces stationed there, according to Col. Wayne O. Kester, chief of the Air Force veterinary service.

Returning from an inspection trip through the Alaskan and Far East air commands, Colonel Kester told Air Force officials that "control of indigenous dogs and other animals is a hopeless task in most areas." He said that as far as United States troops in Alaska are concerned, the only means of protection is immediate reporting of all bite cases, apprehension and quarantine of the suspect animal under veterinary medical supervision for not less than fourteen days, and, when necessary, Pasteur treatment of the bitten person.

Colonel Kester also pointed to the high incidence of rabies in the Philippines and Japan. One airman recently developed rabies in Japan after being bitten by a native dog.

California

State Association.—The sixty-third annual meeting of the California State Veterinary Medical Association was held in Santa Barbara, June 25-27, 1951.

Out-of-state veterinarians who addressed the convention were **Drs. James Farquharson**, Colorado A. & M. College, Fort Collins; **T. Y. Tanabe** (Ph.D.), Pennsylvania State College, State College, Pa.; **George L. Ott**, Fromm Laboratories, Grafton, Wis.; **J. R. Dinsmore**, Tucson, Ariz.; and **J. Laverne Davidson**, the Upjohn Company, Kalamazoo, Mich.

Members of the association who participated in the program were **Drs. Irving Roberts**, Oakland; **J. W. Britton**, Oakdale; **D. E. Barr**, Fresno; **P. L. McClave**, Reseda; **John King**, San Jose; **J. J. Hird**, Canoga Park; **A. G. Boyd**, Sacramento; **J. K. Perry**, Palo Alto; **Clyde Stormont**, Davis; **H. H. Cole**, Davis; and **E. McDonald**, Los Angeles.

Drs. John R. Vasko (M.D.), Oakland; **Wilton L. Halverson** (M.D.), Sacramento; **Nathan Friedman** (M.D.); and **S. E. Peoples** (M.D.), Davis, also spoke before the group.

Georgia

State Association.—The forty-fifth annual meeting of the Georgia Veterinary Medical Association was held at the Hotel Biltmore, Atlanta, on June 17-19, 1951.

The following speakers appeared on the scientific program: **Drs. W. C. Bruce**, Savannah; **B. E. Carlisle**, Camilla; **T. B. Clower**, state veterinarian, Atlanta; **E. E. Chambers**, Ross-ville; **E. A. Davis**, Columbus; **C. E. DeCamp**, Pitman-Moore Co., New York City; **Chas. P. Hill**, Newnan; **R. A. Houston**, Blakely; **Joe Knappenberger**, Ashe Lockhart, Inc., Kansas City, Mo.; **W. J. Gibbons**, Alabama Polytechnic Institute, Auburn; the Honorable **Tom Linder**, commissioner of agriculture, Atlanta; **Drs. W. A. MacKenzie**, University of Georgia, Athens; **Paul Piercy**, University of Georgia, Athens; **L. C. Rossman**, Albany; **T. F. Sellars**, Georgia Department of Public Health; **J. E. Severin**, Atlanta; **Shirley Shepard**, Moultrie; **Col. J. R. Sperry**, Ft. McPherson; **Drs. J. H. Steele**, U. S. Public Health Department, Atlanta; and **John R. Wells**, West Palm Beach, Fla., president-elect of the AVMA.

S/CHAS. C. RIFE, *Secretary*.

Illinois

Personal.—**Drs. W. R. Michael** (CVC '01), Highland, and **J. D. Cluts** (KSC '01), Canton, have practiced veterinary medicine for fifty years. Although in their 70's, both are still in active practice.

Indiana

Sixth District.—The Sixth District (Ind.) Veterinary Medical Association met on June 6 in New Augusta. **Dr. L. M. Hutchings**, Veterinary Department of Purdue University, West Lafayette, was guest speaker, and **Dr. Geo. Burch**, Zionsville, showed motion pictures of some interesting phases of general practice.

Dr. Ivan S. Meyers, Brownsburg, was elected president of the Association. **Dr. and Mrs. Chas. C. Dobson** and **Dr. and Mrs. Geo. Burch** were hosts to the group.

S/J. L. KIXMILLER, *Resident Secretary*.

Indiana-Illinois Association.—The Indiana-Illinois Veterinary Medical Association met in Deming Park, Terre Haute, Ind., on June 8. Guest speakers included **Drs. L. C. Kigin**, Terre Haute; **R. C. Klussendorf**, Commercial Solvents Co., Terre Haute; and **Roy Elrod**, state veterinarian, Indianapolis.

The following officers were re-elected: **Drs. E. K. Ledune**, Sullivan, Ind., president; **H. R. Basinger**, Wheatland, Ind., vice-president; and **Paul Wallace**, Cynthiana, Ind.

Northwestern Association.—Dr. George Burch of the Research Department of Pitman-Moore Co., near Zionsville, showed slides and spoke on experiences in research of interest to the veterinarian at the May 24 meeting of the Northwestern Indiana Veterinary Medical Association.

s/J. L. KIXMILLER, *Resident Secretary.*

Iowa

Dr. Aitken Honored.—Dr. William A. Aitken (ISC '17), Merrill, was honored at Iowa State College on June 16 when he received the Chicago Alumni Merit Award. This award is bestowed upon outstanding alumni for meritorious service in their fields and contributions to their fellow men.

After receiving his D.V.M. degree, Dr. Aitken served as a first lieutenant in the Veterinary Corps. In 1919, he became an instructor at Iowa State College. He remained there until 1931, at which time he established his own practice in Merrill where he is still actively engaged in general practice.

He has carried on research in diseases of food-producing animals in addition to his duties as a professor and as a general practitioner.

Dr. Aitken is a member of the executive committee of the Council on Education of the AVMA and is past president of the Interstate Veterinary Association. He has published several scientific articles.

Missouri

State Association.—The sixty-first annual summer meeting of the Missouri Veterinary Medical Association was held June 25-26, 1951, in St. Joseph.

Speakers in the large animal section were Drs. J. A. Henderson, Ankeney, Iowa; J. A. Baker, New York State Veterinary College, Ithaca; W. E. Dicke, Harrisonville; H. E. Pinkerton, Fort Dodge; A. H. Quin, Kansas City; J. D. Ray, Omaha, Neb.; H. D. Rodabaugh, Kirksville; Carlos Cooper, Kansas City; Carl S. Hulén, Columbia; J. K. Dewar, Cherokee, Iowa; Harold Bain, Cameron; J. W. Chenoweth, Bethany; W. F. Riley, Michigan State College, East Lansing; P. E. Kimball, Stanberry; I. E. Hayes, Waterloo, Iowa; Kirtley Sears, Maryville; T. P. Crispell, Parsons, Kan.; M. D. Conrad, Plattsburg; and A. H. Groth, Columbia.

Drs. H. D. Rodabaugh, Kirksville, and H. E. Curry, state veterinarian, Jefferson City, spoke during the general session.

The following appeared on the program of the small animal section: Drs. John McIlroy, Omaha, Neb.; Deets Pickett, Kansas City; Wade O. Brinker, East Lansing, Mich.; E. H. Haynie, Kansas City; Fred Ogilvie, Kansas City, Kan.; Ralph Messer, Kansas City, Kan.;

J. S. Haley, Topeka, Kan.; J. A. Baker, Ithaca, N. Y.; T. M. Eagle, Parkville; Richard Buchli, Kansas City; G. O. Sigars, St. Joseph; Robert L. Anderes, Kansas City; I. H. Velflick, St. Joseph; C. W. Bower, Topeka, Kan.; and I. J. Twiehaus, Kansas City.

s/H. D. RODABAUGH, *President.*

New York

New York City Association.—The regular meeting of the Veterinary Medical Association of New York City, Inc., was held at the Hotel Statler, June 6, 1951. The motion picture, "Foreleg Paralysis in the Dog," edited by Dr. Mark W. Allam, was shown through the courtesy of the School of Veterinary Medicine, University of Pennsylvania. Dr. W. G. Magrane, Mishawaka, Ind., presented a paper entitled "Some Aspects of Canine Ophthalmology," which was illustrated by slides. Drs. John D. Goebel, New City, and Richard J. Gillespie, Brooklyn, N. Y., were announced as new members.

Following a summer recess, meetings will be resumed on Oct. 3, 1951, at the New York Academy of Sciences, 2 East 63 Street, New York City.

s/C. R. SCHROEDER, *Secretary.*

New York State Veterinary College Honor Day Exercises.—Dr. Gordon Danks presided at the annual Honor Day exercises at the New York State Veterinary College, Cornell University on May 10, 1951, in Willard Straight Hall. Dean W. A. Hagan, acting for the faculty, presented the following awards:

The Borden Veterinary Scholarship Award to the member of the fourth year class who attained the highest scholastic record in all veterinary studies for the first three years (\$300): Allan A. Leventhal.

The Horace K. White Prizes for the students whose academic records for the entire veterinary course are highest: Allan A. Leventhal, first, \$75; Robert M. Cello, second, \$25; John S. Sickles, honorable mention.

The Jane Miller Prizes for the best work in veterinary physiology: Joseph E. Croshaw, Jr., first, \$25; William C. Buell, second, \$15; Danny C. Schlomchug and Jordan Lewis, honorable mention.

The Charles Gross Bondy Prizes for the best work in the courses in practical medicine and surgery of small animals: John L. Mara, first, \$25; Charles R. Allen, Jr., \$15; David E. Hughes, honorable mention.

The Anne Besse Prizes for the best work in medicine and clinical diagnosis: Walter P. Kreutter, first, \$25; Peter L. Malnati, second, \$15; Donald J. Elliott and Richard A. Smith, honorable mention.

The James Gordon Bennett Prizes for the students who show the greatest humaneness in

handling animals, with special reference to the use of anesthesia: William Abel, first, \$25; John S. Baker, second, \$15; Kent C. Roberts, honorable mention.

The Mary Louise Moore Prize for the best work in bacteriology: John S. Sickles, \$40; David E. Hughes, honorable mention.

The Poultry Disease Essay Prize for the best essay on a topic in the field of poultry diseases: No award was made this year since the committee considered none of the papers submitted sufficiently meritorious.

The Alpha Psi Prize to the member of the graduating class who has shown by his scholarship, character, and breadth of interest that he is best equipped to advance the standards of veterinary science: Robert M. Cello, \$50 U. S. Savings Bond.

The New York State Veterinary Medical Society Prizes for the best case reports presented for publication in *Veterinary News*, the organ of the Society. Members of the fourth year class are eligible to compete: Robert M. Cello, first, \$25; Myron H. Schaffer, second, \$15; Marion Hendricks, third, \$10; Paul W. Miner and David E. Hughes, honorable mention.

The Prize of the Women's Auxiliary to the AVMA to the member of the fourth year class who is deemed to have best advanced the standing of the veterinary college on the campus by special contributions of an extra-curricular nature: Myron H. Schaffer, \$25.

The Medal of the Sons of the American Revolution for leadership, soldierly bearing, and excellence in the theoretical and practical

work in the advanced R.O.T.C. course: The presentation was made by the professor of military science and tactics at military ceremonies on May 17 to Albert R. Greenwood.

s/W. A. HAGAN, *Dean*.

Virginia

Death of Dr. Faville.—Dr. George C. Faville (ISC '80), 94, Emporia, Va., last surviving charter member of the Virginia Veterinary Medical Association, died Feb. 16, 1951, after a short illness. After receiving his D.V.M., degree, Dr. Faville was a member of the faculty at Colorado A. & M. College, Fort Collins, and also served as state veterinarian. He later became associated with the Bureau of Animal Industry, and discovered that the cattle tick was the cause of Texas cattle fever. This discovery led to the eventual eradication of the disease.

From 1927 to 1934, Dr. Faville served as state veterinarian of Virginia and then resumed his private practice in Emporia. He retired in 1946 at the age of 90, after serving in his profession sixty-six years.

Dr. Faville was a charter member and one of the organizers of the Virginia State Veterinary Medical Association. He was also co-author of the first license law for veterinarians in the state. He was admitted to the AVMA in 1888.

Dr. Faville is survived by a daughter, a son, two grandchildren, and four great-grandchildren.

s/W. L. BENDIX, *Resident Secretary*.



Sitting (left to right)—Joseph E. Croshaw, Jr., Walter P. Kreutter, Peter L. Malnati, Dr. R. R. Birch, Dr. A. G. Danks, Dr. W. A. Hagan, Robert M. Cello, Allan A. Leventhal.
Standing—Richard A. Smith, John S. Sickles, John L. Mara, Kent C. Roberts, Charles R. Allen, Jr., John S. Baker, Myron H. Schaffer, William Abel, David E. Hughes.

FOREIGN NEWS

Philippine Islands

Annual Meeting.—The twenty-eighth annual convention of the Philippine Veterinary Medical Association was held in the Conference Hall, Squibb & Sons, Walled City, Manila, on April 11-13, 1951. Speakers on the program included **Drs. Vicente Ferriols**, director of the Bureau of Animal Industry and president of the Philippine Veterinary Medical Association; **Angel K. Gomez**, dean, College of Veterinary Medicine, University of the Philippines; **A. Baladad**, Zuellig & Co. (Lederle); **Pedro G. Refuerzo**, Felicidad S. Albis, G. de la Cerna, A. B. Coronel, and Romulo N. Victuelles, all of the Bureau of Animal Industry; **T. Topacio**, **J. B. Uichangco**, and **Z. de Jesus** of the College of Veterinary Medicine, University of the Philippines; **J. D. Generoso**, **F. San Agustin**, **V. Zaratan**, **G. San Gabriel**, **R. A. Acevedo**, **E. C. Farinas**, **R. Gonzales**, **P. B. Agcanas**, **T. V. Rigor**, **A. Montayre**, **P. Villa**, and **Sixto Carlos**, all members of the Association.

Officers elected at this meeting are **Drs. Zacarias de Jesus**, president; **Anacleto B. Coronel**, vice-president; and **Amado Baladad**, secretary-treasurer.

s/JOSE B. ARANEZ, *Corresponding Secretary.*

VETERINARY MILITARY SERVICE

General Armstrong Appointed Surgeon General of the U. S. Army.—Major General George Ellis Armstrong, whose appointment as Surgeon General of the Army was effective June 1, 1951, was born on Aug. 4, 1900, near Springville, Ind. He received his M.D. degree from the University of Indiana in 1925. His various

posts of active duty include Walter Reed General Hospital, Washington, D. C.; Fort Benning, Ga.; Tientsin, China; and Fort Stotsenberg, P. I.

During World War II, General Armstrong served as assistant theater surgeon, China-Burma-India, followed by two years as surgeon of the China theater, returning to the United States in 1946 to serve as chief of personnel, Surgeon General's Office, Washington, D. C.

General Armstrong is a fellow of the American College of Surgeons and the American Medical Association; a member of Military Surgeons of the U. S.; Masonic Blue Lodge; Scottish Rite and Shrine; Phi Kappa Psi and other fraternities; and he is a member of the House of Delegates of the American Medical Association. His decorations include the Legion of Merit, the Army Commendation Ribbon, World War I Victory Medal, and World War II Victory Ribbon.

He resides with his wife, Lillian T., and his son, George G., in Arlington, Va.

DEATHS

★**Paul C. Brown** (MSC '41), 49, College Park, Md., was injured fatally on June 9, 1951, when his automobile collided with a truck. Dr. Brown was an instructor at Purdue University and at Colorado A. & M. College before coming to the University of Maryland in 1946 as associate professor of animal pathology. He is survived by his widow and three children. Dr. Brown was admitted to the AVMA in 1941.

★**John B. Hollenbeck** (MCK '00), 77, Columbus, Ohio, died Jan. 26, 1951. Dr. Hollenbeck was a member of the Ohio Veterinary Medical Association and of the AVMA.

★**Raymond F. Thomas** (IND '12), 64, Atlanta, Ga., died suddenly on May 14, 1951. Dr. Thomas was a member of the Board of Directors of the Georgia State Board of Veterinary Examiners, past president of the Atlanta Veterinary Medical Society and a member of the AVMA.

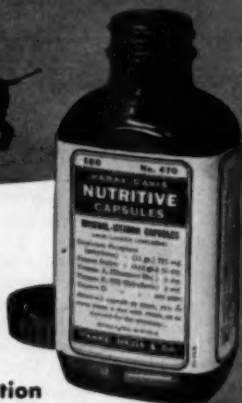
★**Robert D. Wall** (CVC '09), 68, Des Moines, Iowa, died May 21, 1951. Dr. Wall, former state veterinarian and past president of the Iowa Veterinary Medical Association, was a long time leader in Iowa veterinary affairs. He is survived by his widow and one son. Dr. Wall was a member of the AVMA for thirty-eight years.

★**I. G. Wirtz** (TEX '37), 40, Sugarland, Texas, died early in 1951 of a heart attack. Dr. Wirtz had served as county commissioner since 1938. He was a member of the Texas Veterinary Medical Association and of the AVMA. He is survived by his widow and two children.

★Indicates members of the AVMA.



Surgeon General George E. Armstrong



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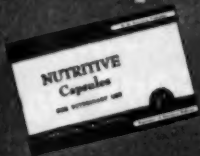
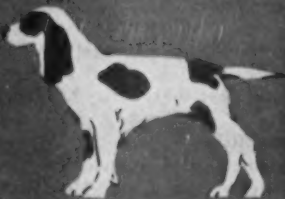
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COMING MEETINGS

Notices of Coming Meetings must be received by 4th of month preceding date of issue

College of Veterinary Surgeons of the Province of Quebec. One-day session on poultry pathology. Chicoutimi, Que., Aug. 4, 1951. Paul Genest, St. Hyacinthe, Que., resident secretary.

American Veterinary Medical Association. Annual meeting. Milwaukee Auditorium, Milwaukee, Wis., Aug. 20-23, 1951. J. G. Hardenbergh, American Veterinary Medical Association, 600 S. Michigan Ave., Chicago 5, Ill., executive secretary.

Veterinary Association of Manitoba. Summer meeting. International Peace Gardens (south of Boissevain), Sept. 1, 1951. Members of the North Dakota Veterinary Medical Association are invited to attend this meeting. E. J. Rigby, 156 Princess St., Winnipeg, Man., secretary.

Tennessee, University of. Annual short course for veterinarians. University of Tennessee, Knoxville, Tenn., Sept. 6-7, 1951. Dennis Sikes, professor of veterinary science.

Canadian Veterinary Medical Association. Third annual meeting. Banff Springs Hotel, Banff, Alta., Sept. 8-11, 1951. J. G. Anderson, 1016 9th Ave. W., Calgary, Alta., chairman, local committee.

Second International Gerontological Congress. Hotel Jefferson, St. Louis, Mo., Sept. 9-14, 1951. E. V. Cowdry, 660 South Kingshighway, St. Louis 10, Mo., president.

Northeast Mississippi Veterinary Association Clinic. Dr. W. L. Stroup's Clinic, Corinth, Miss., Sept. 11, 1951. W. C. Anderson, Macon, Miss., secretary.

Nutritional Conference for Veterinarians. Annual conference, Iowa State College, Ames, Iowa, Sept. 13, 1951. C. D. Lee, Iowa State College of Agriculture, Ames, Iowa, extension veterinarian.

Southeast Missouri Veterinary Medical Association. Fall meeting. W. R. Sheets' Animal Hospital, Farmington, Mo., Sept. 19, 1951. F. A. Stepp, 405 West North St., Sikeston, Mo., secretary.

Southwestern Iowa Veterinary Medical Association.

tion. Fall meeting. Council Bluffs, Iowa, Oct. 2, 1951. F. B. Young, Box 6, Waukegan, Iowa.

Purdue University. Annual short course for veterinarians. Purdue University, La Fayette, Ind., Oct. 3-5, 1951. L. M. Hutchings, Department of Veterinary Science, Purdue University, La Fayette, Ind., chairman.

Missouri, University of. Short course for veterinarians. School of Veterinary Medicine, University of Missouri, Oct. 8-9, 1951. Cecil Elder, chairman.

Illinois, University of. Annual veterinary conference. University of Illinois College of Veterinary Medicine, Urbana, Ill., Oct. 11-12, 1951. Robert Graham, dean.

Southern Veterinary Medical Association. Annual meeting. Lord Baltimore Hotel, Baltimore, Md., Oct. 22-24, 1951. A. A. Husman, 320 Agric. Bldg., Raleigh, N. Car., secretary.

Minnesota, University of. Short Course for veterinarians. School of Veterinary Medicine, University of Minnesota, Oct. 25-26, 1951. B. S. Pomeroy, secretary.

Florida State Veterinary Medical Association. Annual meeting. Hotel Floridan, Tampa, Fla., Oct. 28-30, 1951. V. L. Bruns, Box 623, Williston, Fla., secretary.

American Public Health Association. Annual meeting. Civic Auditorium, San Francisco, Calif., Oct. 29-Nov. 2, 1951. J. C. Geiger, director of public health of the city and county of San Francisco, in charge of local arrangements.

Mississippi Valley Veterinary Medical Association. Annual fall meeting. Pere Marquette Hotel, Peoria, Ill., Oct. 31-Nov. 1, 1951. R. J. Kirkpatrick, 1235 N. Henderson St., Galesburg, Ill., secretary.

Cornell Nutrition Conference for Feed Manufacturers. Statler Hotel, Buffalo, N.Y., Nov. 1-2, 1951. J. T. Reid, Department of Animal Husbandry, Cornell University, Ithaca, N.Y., chairman.

United States Livestock Sanitary Association. Fifty-fifth annual meeting. Hotel President, Kansas City, Mo., Nov. 14-16, 1951. R. A. Hendershott, 1 West State St., Trenton, N. J., secretary.

Regularly Scheduled Meetings

Bay Counties Veterinary Medical Association, the second Tuesday of each month. Howard F. Carroll, 2024 Lombard St., San Francisco 23, Calif., secretary.

Cedar Valley Veterinary Association, the second

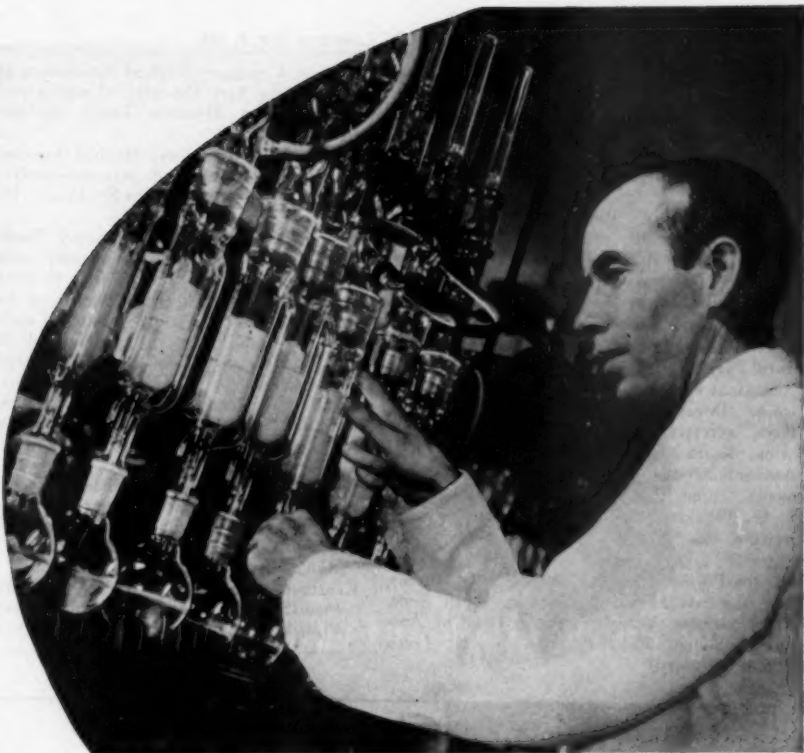
(Continued on p. 28)



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- Monday of each month (except July and August) at Black's Tea Room, Waterloo. F. E. Brutsman, Traer, Iowa, secretary.
- Central California Veterinary Medical Association, the fourth Tuesday of each month. Thomas Eville, Route 1, Box 136H, Fresno, Calif., secretary.
- Chicago Veterinary Medical Association, the second Tuesday of each month. Robert C. Glover, 1021 Davis St., Evanston, Ill., secretary.
- East Bay Veterinary Medical Association, bi-monthly, the fourth Wednesday. O. A. Soave, 5666 Telegraph, Oakland, Calif., secretary.
- Fayette County Veterinary Association, Iowa, the third Tuesday of each month, except in July and August, at Pa and Ma's Restaurant, West Union, Iowa. Donald E. Moore, Box 178, Decorah, Iowa, secretary.
- Florida, North-East Florida Veterinary Medical Association, the second Thursday of each month, time and place specified monthly. J. O. Whiddon, 829 San Marco Blvd., Jacksonville, Fla.
- Greater St. Louis Veterinary Medical Association. Ralston-Purina Research Building, St. Louis, Mo., the first Friday in February, April, June, and November. W. C. Schofield, Dept. of Animal Pathology, Ralston-Purina Co., St. Louis 2, Mo., secretary.
- Houston Veterinary Medical Association, Houston, Texas, the first Thursday of each month. Edward Lepon, Houston, Texas, secretary-treasurer.
- Illinois Valley Veterinary Medical Association, the second Wednesday of even-numbered months. R. A. Case, 400 S. Garden St., Peoria, Ill., secretary.
- Indiana Tenth District Veterinary Medical Association, third Thursday of each month. L. A. Snider, New Palestine, Ind., secretary.
- Jefferson County Veterinary Society of Kentucky, Inc., the first Wednesday evening of each month, in Louisville or within a radius of 50 miles. F. M. Kearns, 3622 Frankfort Ave., Louisville 7, Ky., secretary.
- Kansas City Small Animal Hospital Association, the first Monday of each month, at the Hotel Continental. T. M. Eagle, Parkville, Route 2, Mo., secretary.
- Kansas City Veterinary Medical Association, the third Tuesday of each month, in the Hotel Continental, 11th and Baltimore, Kansas City, Mo. K. M. Curtis, 70 Central Ave., Kansas City 18, Kan., secretary.
- Keystone Veterinary Medical Association, the Penn-Sheraton Hotel, 39th and Chestnut St., Philadelphia, Pa., on the fourth Wednesday

(Continued on p. 30)

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(COMING MEETINGS — continued from p. 28)

of each month. Raymond C. Snyder, 39th and Woodland Ave., Philadelphia 4, Pa., corresponding secretary.

Maricopa County Veterinary Association, the second Tuesday of each month. Charles J. Prchal, 1722 East Almeria Road, Phoenix, Ariz., secretary.

Michiana Veterinary Medical Association, the second Thursday of each month. Write R. W. Worley, secretary, 3224 L.W.W., South Bend, Ind., for location.

Michigan, Southeastern Veterinary Medical Society. Herman Kiefer Hospital, Detroit, Mich., the second Wednesday of each month from October through May.

Milwaukee Veterinary Medical Association. Wisconsin Humane Society, 4150 N. Humbolt Ave., Milwaukee, Wis., the third Tuesday of each month. Kenneth G. Nicholson, 2161 N. Farwell Ave., Milwaukee, Wis., secretary.

Monterey Bay Area Veterinary Medical Association, the third Wednesday of each month. C. Edward Taylor, 2146 South Broad St., San Luis Obispo, Calif., secretary.

New Castle County Veterinary Society, the second Wednesday of each month at 9:00 p.m. in the Hotel Rodney, Wilmington, Del. Harold Roberts, Paper Mill Road, Newark R3, Del., secretary.

New York City Veterinary Medical Association. Hotel Statler, New York, N. Y., the first Wednesday of each month. C. R. Schroeder, Lederle Laboratories, Inc., Pearl River, N. Y., secretary.

North San Joaquin Valley Veterinary Medical Association, the fourth Wednesday of each month. V. E. Graff, Oakdale, Calif., secretary.

Orange Belt Veterinary Medical Association, the second Monday of each month. James R. Ketchersid, 666 East Highland Avenue, San Bernardino, Calif., secretary.

Orange County Veterinary Medical Association, bimonthly, the second Tuesday of each month. J. H. Bower, P. O. Box 355, Santa Ana, Calif., secretary.

Peninsula Veterinary Medical Association, the third Monday of each month. E. W. Paul, Box 866, Redwood City, Calif., secretary.

Pima County (Arizona) Veterinary Medical Association, the third Wednesday of each month,

(Continued on p. 32)

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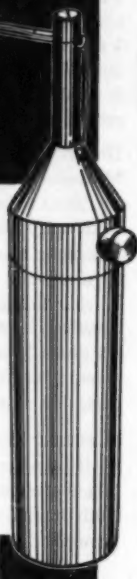
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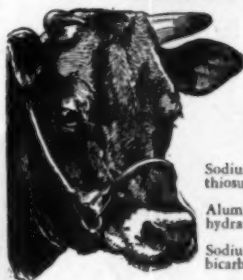
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(COMING MEETINGS — continued from p. 30)

in Tucson. R. W. Adams, 2103 S. 6th Ave., Tucson, Ariz., resident secretary.

Portland (Oregon) Veterinary Medical Association, the second Tuesday of each month, in the Auditorium of the Upjohn Company. L. G. Nicholson, 8415 S.E. McLoughlin Blvd., Portland 2, Ore., secretary.

Redwood Empire Veterinary Medical Association, the third Thursday of each month. John E. Wion, 3614 Redwood Highway South, Santa Rosa, Calif.

Roanoke-Tar (N. Car.) Veterinary Medical Association, the first Friday of each month, 7:00 p.m., in Rocky Mount. G. L. Gilchrist, Edenton, N. Car., secretary.

Sacramento Valley Veterinary Medical Association, the fourth Friday of each month. R. C. Goulding, 11511 Capitol Avenue, Sacramento, Calif., secretary.

San Diego County Veterinary Medical Association, the fourth Tuesday of each month. R. J. McFarland, 3621 Jewell St., San Diego 9, Calif., secretary.

Southern California Veterinary Medical Association, the third Wednesday of each month. R. W. Sprowl, 11756 San Vicente Blvd., Los Angeles 49, Calif., secretary.

South Florida Veterinary Society, the third Tuesday of each month, 8:00 p.m., at the Peckway Sket Club, Robert P. Knowles, 2936 N.W. 17th Ave., Miami, Fla., secretary.

Tulsa Veterinary Medical Association, the third Thursday of each month, in Director's Parlor of the Brookside State Bank, Tulsa, Okla. John Carnes, Muskogee, Okla., secretary.

Foreign Meetings

First Pan American Veterinary Conference. Lima, Peru, Oct. 20-26, 1951. José Santivañez, dean, Veterinary College, San Marcos University, Lima, Peru.

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- Great Dane — postpaid \$15.00
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- Set of above four — postpaid \$50.00

These patented "championship" forms are patterned after markings of winners of top honors in show competition. Forms for other breeds made on special order. Sold to veterinarians only. Send check or money order.



MacALLAN LABORATORIES

Route No. 2, Box 420

Lansing, Michigan

"Valiant Years"

The veterinary public relations motion picture, "Valiant Years," is still in big demand—more than three years after its production. According to officials of Associated Serum Producers, sponsors of the film, over 300 requests per month are being received, principally from farm bureaus, vocational agriculture classes, church and school groups, and civic clubs.

"Valiant Years" portrays a typical veterinarian and the service he renders to his community. It is now released through film exchanges throughout the United States.

Veterinarians wishing to show the film to local groups may obtain it by writing Associated Serum Producers, Liberty Bldg., Des Moines, Iowa, giving at least three weeks advance notice.

Tularemia from Water Supply.—Tularemia in human beings and farm animals, apparently resulting from a domestic rural water supply, is reported in *Public Health Reports* (Sept. 22, 1950).

"What should we feed him?"

What about meat?

Are table scraps enough?

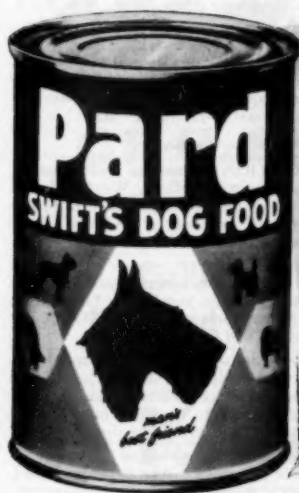
Is there a really
complete dog food?

Does he need variety?



There's no question about it when you

RECOMMEND PARD



A COMPLETE, BALANCED FOOD

Pard contains all these ingredients:
Meat Protein • Wheat • Barley • Soy Flour
Ground Edible Bone • Irradiated Yeast
Fish Liver Oil • Minerals • Vitamins

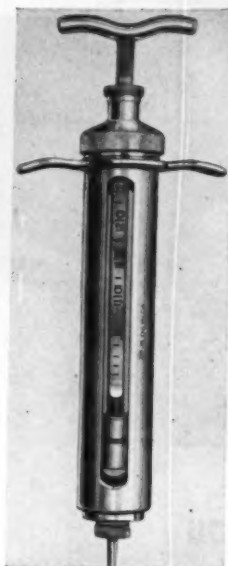
Check these nutrients in a 1-lb. can
of Pard against those in any other
prepared dog food you know!

Protein	52.8 gms.	Vitamin A	550.0 units
Carbohydrates	45.7 gms.	Vitamin B	
Fat	14.7 gms.	Thiamine	1.41 mgs.
Iron	22.7 mgs.	Riboflavin	1.88 mgs.
Calcium	2.0 gms.	Niacin	10.2 mgs.
Phosphorus	1.50 gms.		
Energy:	100% of daily caloric needs for average-size (20-lb.) dog		

*Better for a dog
than red, raw meat*

Dogs crave meat, and need it. But meat alone is not enough. Swift makes PARD so that it gives a dog all the meat protein he loves, *plus* all the other important nutrients he needs. The table at the left tells you some facts about PARD that perhaps you weren't aware of. Read it... and recommend PARD with assurance. A dog needs nothing more, he can get nothing better.

Ranch Record Veterinary Syringe



Superior quality veterinary syringes—Choice of ground glass barrel with metal plunger or rubber packing—Accurate dosage and smooth operation always assured.

Inexpensive replacement parts available.

Inquire at your nearest veterinary dealer or wholesaler concerning this outstanding product.

Sizes 2 cc. to 40 cc.

Boston Record Syringes

High quality syringe consisting of graduated, ground, resistance glass barrel with nickel silver plunger and strongly constructed metal parts. No Washers—No Binding Rubber Packings to interfere with smooth operation. Easily disassembled for sterilization.

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Boston Record Syringes create sales for the dealer and satisfaction for the user.

Repair exchanges available.
Sizes 1 cc. to 150 cc.



Literature Upon Request

Boston Instrument Mfg. Co., Inc.
50 Thayer St., Boston 18, Mass.

CLASSIFIED ADVERTISEMENTS

Twenty-five words or less, \$2.50; 8 cents for each additional word. Replies sent in care of the JOURNAL, 25 cents extra.

Remittance must accompany order.

Deadline for want ads 8th of month preceding date of issue.

Names of classified advertisers using key letters can not be supplied. Address your reply to the key letters, c/o JOURNAL of the AVMA, 600 S. Michigan Ave., Chicago 5, Ill., and it will be transmitted to the advertiser.

Wanted—Veterinarians

WANTED—assistant veterinarian for general practice in western Oregon. Address "Box J 18," c/o JOURNAL of the AVMA.

WANTED VETERINARIAN—There is a vacancy for a veterinarian for poultry disease work on the staff of the Delaware Board of Agriculture. This is an opportunity to work in the largest broiler-producing area in the United States. The duties would consist of farm visits and postmortem and bacteriological work in the laboratory. Anyone interested in this position is requested to submit his application to the Poultry Disease Control Department, State Board of Agriculture, Dover, Del.

WANTED—New Jersey State-licensed veterinarian to assist in large mixed practice. State experience, qualifications, and age. Address "Box K 3," c/o JOURNAL of the AVMA.

WANTED—veterinarian for small animal practice. State age, experience, nationality, marital and draft status; also enclose photo in first letter. Address "Box K 4," c/o JOURNAL of the AVMA.

WANTED—New York State-licensed veterinarian as assistant in Long Island small animal hospital. State qualifications, experience, and personal description in first letter. Address "Box K 10," c/o JOURNAL of the AVMA.

WANTED—assistant veterinarian for predominantly small animal hospital, Pacific Northwest. Permanent position. State qualifications, full particulars, and salary expected in first letter. Address "Box K 13," c/o JOURNAL of the AVMA.

Wanted—Positions

WANTED POSITION—American veterinarian, graduate of Swiss veterinary college, World War II veteran, married, seeks position with general practitioner. Large animal experience. Address "Box K 6," c/o JOURNAL of the AVMA.

WANTED POSITION—experienced veterinarian desires position with busy practitioner, perhaps leading to lease, partnership, or purchase. Licensed in New Jersey and Pennsylvania. Address "Box K 9," c/o JOURNAL of the AVMA.

Farm-reared girl desires secretarial-hospital assistant position. Preferably in a mixed practice in the Southeast. Has five years' secretarial and accounting experience and a desire to learn the other duties. Address "Box K 11," c/o JOURNAL of the AVMA.

WANTED—assistantship in mixed practice located in Colorado or Nebraska. Age 29, experienced,

(Continued on p. 38)

Here's
ONE
Dog Food
That
Actually
Contains..



**Lean,
Red Cuts**

**OF U.S. GOVT. INSPECTED
HORSE MEAT**

Including Roasts . . . Steaks and Chops . . .
Fortified with All-Known "Dog-Health Vitamins"
Plus Vital Minerals

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THE QUAKER OATS COMPANY — KEN-L-PRODUCTS DIVISION Chicago, Illinois

in "durst" . . . shows dramatic results in neuromuscular dysfunction in small animals

Animals are returned to excellent health without undesirable side reactions.¹

Many hopeless cases have responded amazingly to treatment with Physotroпин. Acting as a cholinesterase inhibitor, Physotroпин relieves patients of muscle spasm. It has been reported² as being used successfully in the following conditions: rheumatoid arthritis, inflammation of spinal cord, intervertebral and cervical disc injury, atrophy of muscles following injury, myasthenia, ventricular dropsy, and as routine following fracture repairs. Used in solution for immediate results and in tablet form as a maintenance dose, try it in the next case where it is applicable.

1. *Proceedings, S. A. and DeCamp, D., Vet. Med., November 1950.*

2. *Ibid.*

Tablets containing:

Physostigmine Salicylate 0.5 mg (1/120 gr.)

Atropine Sulfate 0.15 mg (1/400 gr.)

Sterile, isotonic solution containing:

Physostigmine Salicylate 1.0 mg per cc.

Atropine Sulfate 0.6 mg per cc.

SUPPLIED:

Physotroпин Solution;

10 cc. Rub-R-Top Vials.

Physotroпин Tablets;

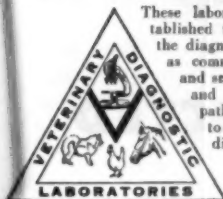
10 cc. Rub-R-Top Vials.

* Write for samples and literature.

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physotroпин "durst"

Laboratory Service for Veterinarians



These laboratories have been established to aid veterinarians in the diagnosis of obscure as well as common ailments in large and small animals. An expert and experienced veterinary pathologist heads our staff to give quick and accurate diagnosis at all times.

Our service includes fecal examinations, urinalysis, blood counts, culture work, tissue sections, skin scrapings, and autopsies, and is designed to assist owners and breeders of stock of all kinds including dogs, horses, cattle, poultry, hogs and sheep.

Descriptive pamphlet, sample containers and fees on request.

Dr. Seymour Nord, Pathologist
Dr. James R. Kinney, Consultant

VETERINARY DIAGNOSTIC LABORATORIES

220 East 23rd St., New York 10, N.Y.

(CLASSIFIED ADS — continued from p. 36)

Protestant, married. Address "Box K 17," c/o JOURNAL of the AVMA.

POSITION WANTED—capable veterinarian with five years' small animal experience desires position in New York or New Jersey. Will consider offers for sale or lease of practices. Address "Box K 19," c/o JOURNAL of the AVMA.

Wanted—Practices

PRACTICE WANTED—established small animal practice wanted in metropolitan New York or New Jersey area. Substantial down payment offered. Will also consider assistantship with option to buy. Address "Box K 18," c/o JOURNAL of the AVMA.

For Sale or Lease—Practices

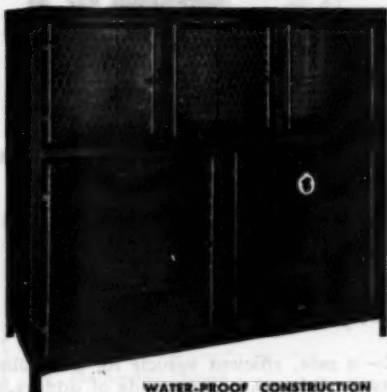
FOR SALE—new five-room hospital and general practice in prosperous Midwest community, doing a \$20,000 approximate gross, good business location, and priced at \$15,000. Liberal terms to suit right person. Price includes real estate, hospital furnishings, and some equipment and drugs. Address "Box J 11," c/o JOURNAL of the AVMA.

FOR SALE—fine dairy practice in Wisconsin. No competition. Nearest veterinarian twelve miles. No real estate. Price one half of the gross receipts for one year plus equipment. Cash. Outstanding opportunity. Reason for sale, other business interest. Address "Box K 7," c/o JOURNAL of the AVMA.

FOR SALE—small animal hospital in San Fran-

(Continued on p. 42)

"Water-Proof"
5 COMPARTMENT STALLS
\$179.90



WATER-PROOF CONSTRUCTION
HEAVILY GALVANIZED SHEETS
NO EXTRA CHARGE!

Bottoms are water-proof trays with $\frac{1}{2}$ " turned up edges, heavily soldered together. Braced, aluminum painted, $\frac{1}{2}$ " angle iron frames. Door frames 1" O. D. pipe. Dog proof mesh filler welded to frame. All sheets heavily galvanized.

Completely Assembled. Satisfaction Guaranteed.
SIZES: 3 upper stalls 24" x 24" x 28" deep.
 2 lower stalls 36" x 36" x 28" deep.
 Overall size: 6' wide x 5'8" high x 28 $\frac{1}{2}$ " deep.
 Stalls Stand 6 in. off floor.



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The low cost will surprise you!

Ford **DOUBLE FRAME** Panel Runs insure **SAFETY** for your dogs. Chain link fabric is rust resistant, cannot be spread permanently locked by **INNER BAR FRAME. NO TIE WIRES TO RUST.** Clamp together. No bolt holes to match. Portable or permanent construction.

Made in sizes to fit your requirements. 4, 5, and 6 ft. heights. Lengths 2 to 14 ft. panels.

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Produced for the
 exclusive use of the
 Graduate Licensed
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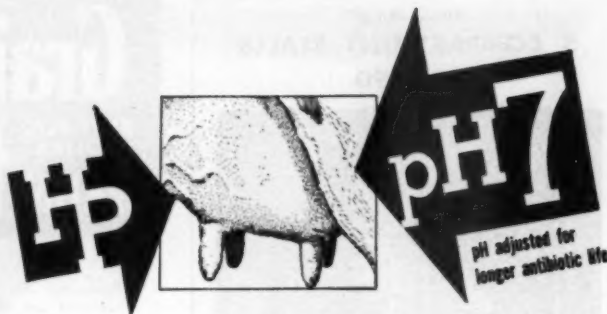
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 the exactness of all products
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HP Vehicle
TRADE MARK



An Antibiotic Vehicle for the treatment of Bovine Mastitis.
CONTAINS NO ANTIBIOTICS.

FORMULA: Anhydrous Lactose (U.S.P.); Chloramphenicol and Sterility of Animal Tissue origin, Refined Mineral Oil, Sterilized Water, 0.18% Methyl Ester and 0.2% Propyl Ester of Parahydroxybenzoic Acid (Parflox).

CAUTION: To be dispensed only by or on the prescription of a graduate veterinarian.

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100 cc. \$9.00 doz. (in any quantity)
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Antibiotic Vehicle for Intramammary Infusion

H. P. VEHICLE—a safe, efficient vehicle for Penicillin and/or Streptomycin. Infused in thousands of udders it has effected a very high recovery rate when used as directed.* **H. P. VEHICLE**—packed in special containers with **EXTRA MIXING ROOM** necessary for thorough incorporation with antibiotics. Light enough for use even on colder days. These features save the Doctor time... result in **More Calls per Day!**

'Prescription Labeling' requires **H. P. VEHICLE** sales through Graduate Veterinarians only! Available through Leading Veterinary Supply Houses. * Literature available

Notice to Qualified Veterinary Supply Houses: If you would be interested in an attractive "H. P." distributorship, write at once to the Veterinary Division.

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BEDFORD LABORATORIES

325 South Richard Street, Bedford, Pennsylvania

HOTEL RESERVATIONS — MILWAUKEE CONVENTION

Eighty-Eighth Annual Meeting, AVMA, August 20-23, 1951

Selected hotels listed below are all near the Milwaukee Auditorium, where convention activities will be centered. Fill out reservation form and mail it directly to hotel of your first choice. If that hotel is filled, it will forward your request to another hotel you have named. Confirmation will come from hotel which accepts reservation. Since this is an auditorium convention, there will be no headquarters hotel.

HOTELS AND RATES* — SEE LOCATIONS ON OPPOSITE PAGE

Hotel	Single	Double (with Double Bed)	Double (with Twin Beds)
1. Antlers	\$2.25-5.00	\$3.50-6.00	\$6.00
2. Medford	3.00-4.00	4.25-5.25	6.00-7.00
3. Pfister	3.50-8.00	6.50-10.00	7.00-12.00
4. Plankinton House	3.50-6.00	6.00-8.00	6.50-9.00
5. Schroeder	3.75-10.00	6.50-10.00	8.00-12.00
6. Wisconsin	3.50-7.50	5.50-9.00	7.50-10.00

*Information about availability and rates of suites may be obtained on request to hotels of your choice. See reservation form below.

Cut Off Here

HOTEL RESERVATION FORM — AVMA CONVENTION

To: (Name of Hotel) Date
Milwaukee, Wis.

Please make reservations indicated below:

(Three choices **MUST** be shown.)

First choice hotel

Second choice hotel

Third choice hotel

Accommodations and Rates Desired:

- ☐ Single room at \$..... per day
☐ Double-bed room at \$..... per day
☐ Twin-bed room at \$..... per day
☐ Send me information about suites

Arriving on (date) at a.m. p.m.

Leaving on (date) at a.m. p.m.

Room will be occupied by:

Name City and State

Name City and State

Your Name (print or type)

Street Address

City Zone State

NOW

**TWICE AS MUCH PENICILLIN
AT NO INCREASE IN COST!**

Regular Mastics now contain 50,000 units of penicillin instead of 25,000 units, but the price has not been changed.

MASTICS

(Trade Mark Reg. U.S. Pat. Off.)



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**MASTITIS
CONTROL**

Mastics are the original udder bougie
Sold only to veterinarians

MASTICS are greaseless and completely soluble... won't contaminate the milk

MASTICS are the least irritating form of therapy, as shown in comparative studies made by the Wisconsin Agricultural Experiment Station (J.A.V.M.A. 117:414, 1950)

MASTICS are individually foil-wrapped—sanitary and easy to use

MASTICS are highly effective and economically priced

Regular Mastics—now with 50,000 units of penicillin
25's, \$4.00 • 100's, \$15.00 • 500's, \$65.00.

High Potency Mastics—with 100,000 units of penicillin
25's, \$5.75 • 100's, \$22.00.

NOTE: PRICE REDUCTION on
Mastics P & S—with 50,000 units of penicillin,
50,000 mcg. of streptomycin
25's, \$5.75 • 100's, \$22.00

Mastics are consistently promoted in dairy, farm and breed journals.

Made only by

The



Martin Laboratories

WEST CHESTER, PENNA.

(CLASSIFIED ADS — continued from p. 38)

cisco Bay area, established four years, modern equipment, 36 kennels. Address "Box K 8," c/o JOURNAL of the AVMA.

FOR SALE—a real buy. Small animal hospital near Los Angeles. No real estate. Grossed \$20,000 last year. Forty animal capacity. Expecting recall to Army. \$12,000 cash or \$13,500 terms. Address "Box E 12," c/o JOURNAL of the AVMA.

FOR SALE—small animal hospital, also includes large animal practice, established over twenty years in good dairy country. Modern tile hospital fully equipped with drugs and instruments, owner will finance. Address "Box K 1," c/o JOURNAL of the AVMA.

Remittance must accompany order

FOR SALE—large animal practice in Midwest. Large territory. \$13,000 buys home, drugs, and equipment. Must sell due to health. Last year's gross \$17,000. Address "Box K 5," c/o JOURNAL of the AVMA.

FOR SALE OR LEASE—thriving small animal practice and hospital with three-room apartment. Located in Hartford, Conn., where concentration of industry and insurance guarantees a steady clientele. Terms arranged for right person. Must sell or lease as am returning to college for postgraduate study. Address "Box K 12," c/o JOURNAL of the AVMA.

FOR SALE—large and small animal practice, western Washington, town of 45,000. Ultramodern hospital, capacity 50 animals. Gross \$25,000. Must sell due to ill health. Price and terms on application. Address "Box K 14," c/o JOURNAL of the AVMA.

PRACTICE FOR SALE—in South Carolina. Small house and hospital on same premises. Will sell everything, including equipment in hospital, for \$12,000. \$6,000 down. Address "Box K 15," c/o JOURNAL of the AVMA.

FOR SALE—mixed practice in Pennsylvania, 50 per cent small animal. Compact, efficient; hospital attached to new bungalow. Excellent location, beautiful surroundings. Price \$13,000. Address "Box K 16," c/o JOURNAL of the AVMA.

FOR SALE—at Oklahoma City, Okla., brand new animal hospital. Solid masonry brick building, 4,150 sq. ft. of floor space, just finishing. Has all necessary rooms such as x-ray, reception, examination, dark, laboratory, and two-room quarters. Corner lot 248 x 300 ft. Excellent location. Owner not well; must sell. Address Ed McBride, 2115 N.W. 15th, Oklahoma City, Okla. Telephone 54-2745.

TO LEASE—small animal hospital, includes well-established mixed practice in Wisconsin. Lease money to apply toward purchase price. Address "Box K 2," c/o JOURNAL of the AVMA.

Miscellaneous

WANTED—a copy of "Veterinary Comparative Ophthalmology" translated by Gray. Address American Veterinary Publications, Inc., Box 872, Evanston, Ill.

Books and Magazines

Dog World, monthly magazine on all breeds, all dog subjects. Keeps you informed authoritatively. \$3 one year, \$5 two years, \$10 five years. Judy Publishing Co., 3323 Michigan Blvd., Chicago 16, Ill.

(Continued on p. 44)

Friskies

Authoritative information on the scientific care and feeding of dogs. **No. 8**
Published by Albers Milling Company (a division of Carnation Company) under the supervision of Dr. E. M. Gildow, B.S., M.S., D.V.M., Director of Research.

DOG RESEARCH NEWS

Puppies Need Rough Surface

Puppies usually try their legs about the third week. A piece of burlap or other rough surface tacked



Litter at Friskies Kennels, where Friskies Formula was Developed

to the floor will help them get a better footing. The third week is a milestone for another reason, for it is after this week that the puppies should be started on Friskies. Tests on many generations of dogs of almost every type prove that the normal puppy will grow and thrive on a diet of Friskies alone.

Selling a Dog

If you know your dog, you know his worth. The first fellow who comes along may not agree, but that doesn't matter. Set your price fairly and stay with it.

If you know the characteristics of the breed, the good qualities of this strain, the value of this individual compared to others in his litter, or in the breed, you are ready to set a price. Once you do, don't change it.



When you establish a reputation for fair prices, and for standing by the price you set, your customers will outnumber the dogs you have for sale.

After you make the sale, some advice from you may help the new owner get better results from his dog. For example, you might tell him what you feed your dogs. How he can expect a healthy, frisky dog, and save money, too, by feeding a complete meal like Friskies.

Hand Feeding of Puppies

In an article on "Puppy Management", F. J. Bartos, mgr. of Friskies Kennels, recommends any one of three milk formulas if the bitch is unable to produce a sufficient supply of milk.

- | | |
|--|---------------------|
| 1 cup cows milk | 1 tsp. lime water |
| (1) 1 egg yolk | 1 tsp. fat (butter, |
| 1 tsp. Karo syrup | also or corn oil) |
| (2) 1 cup cows milk | |
| 3 raw eggs (exclude all egg white) | |
| (3) Carnation Evaporated Milk as it comes from the can | |

Puppies should thrive on any of these formulas. To assure a continuation of normal growth, feed Friskies... one meal scientifically balanced to provide every food element dogs are known to need for complete nourishment.

The knowledge gained through 50 years of animal nutrition is yours for the asking. Send your questions to Friskies, Dept. Y, Los Angeles 36, California.



NO SUPPLEMENTS
NEEDED WHEN
YOU FEED

Friskies

• A COMPLETE DOG FOOD •

5 Sizes:
30, 25, 10, 5, 2 lbs.

A FRISKY DOG IS A HEALTHY DOG

DOCTOR: TAKE YOUR LABORATORY TO THE COW

AND GET
**SIMPLE
SPEEDY
ACCURATE
DIAGNOSIS
ON THE SPOT**



The 4-in-one test kit contains all the reagents necessary for diagnosing the four most common ailments of animals: Acetonemia, Serum Calcium Deficiencies, Albuminuria and Conditions of pH Unbalance. Hardwood case with polished brass hardware. Built to last a lifetime. A must for every progressive large-animal practitioner.

Sold through Veterinary Supply distributors to graduate Veterinarians only.

Compact + O
Vet
REG. APPR. FOR

Kit, complete with reagents and testing equipment... \$11.75. Refills available at low cost.

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VETERINARY DIVISION • HARRISBURG, PA.

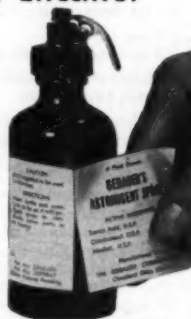
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Immediately Effective!**

Gebauer's Astringent Spray

Gebauer's Astringent Spray, an antiseptic and analgesic preparation, combining Tannic Acid, Chlorbutanol, and Alcohol, has rapidly been gaining preference among veterinarians.

Indicated in the treatment of many types of effusive affections such as those that are often designated "weeping eczema"; in the treatment of ordinary wounds and abrasions, and ordinary burns.

The solution emitted from the famous Gebauer "Dispenseal" bottle with the force of a jet stream insures rapid, thorough application, leaving a thin transparent film of tannic acid clinging firmly to the skin. A transparent protective coating promptly forms on minor cuts, lacerations, and abrasions. Usually, in cases of explosive type eczema, weeping is quickly controlled, and in most cases no further dressing or bandaging is necessary. Supplied with tear-off label. For more complete information, write your supply house or Dept. J, THE GEBAUER CHEMICAL CO.



THE GEBAUER CHEMICAL COMPANY
9410 St. Catharine Ave. • Cleveland, Ohio
The Accepted Standard Since 1902

(CLASSIFIED ADS — continued from p. 42)

For Sale—Artificial Insemination Supplies

ARTIFICIAL INSEMINATION INSTRUMENTS

—Essential equipment, replacement parts and materials, designed and manufactured especially for artificial insemination. Prompt delivery. New catalog. Address: Breeder's Equipment Co., Flourtown, Pa.



—Acme Photo

Dr. L. J. Smith, Fairbury, Neb., who delivered the quintuplet calves in 1945, and later acquired full ownership of them, signs papers in 1946 for their appearance at state fairs in the Middlewest. The quints were slaughtered May 7, 1951, at Omaha.

Give



**The
United
Way**

for ALL Red Feather Services

The red feather is a bigger red feather this year. Symbol of more than 15,000 health, recreation, and welfare services that combine their annual appeals once a year in more than 1,300 local community chest campaigns, the red feather this year has an added assignment: the United Defense Fund, which includes United Service Organizations, Inc. (USO); American Social Hygiene Association; National Recreation Association (emergency defense program); United Community Defense Services; and American Relief for Korea.

GOOD HEALTH
DEMANDS PROPER RUMEN FUNCTION
IN COWS, CALVES AND ALL
OTHER RUMINANTS



RU-ZYME THE ORIGINAL NATURAL RUMEN STIMULANT

CONTAINING PRESERVED RUMEN CULTURE* AND ENZYMES

RU-ZYME is a scientifically-blended concentration of *Preserved Rumen Bacteria*, *Enzyme Cultures*, *Vitamins* and *Trace Minerals*. The enzymes include digestive and stimulating enzymes from selected mold and bacterial cultures. Among the specific enzyme groups are diastatic, proteolytic and certain fermentation-stimulating enzymes.

RU-ZYME (Cow) is especially formulated and designed for the mature ruminant. The cow, sheep, goat, being typical ruminants, depend on the rumen and its microorganisms, and attending enzymes for digesting the bulk of roughage. When rumen activity has been reduced or has ceased altogether, RU-ZYME (Cow), through high enzyme activity, helps to establish the correct environment of the rumen so that the preserved rumen bacteria may become implanted, develop, and induce proper rumen function.

RU-ZYME is formulated in two concentrations —

RU-ZYME (Cow) for the mature ruminant and

RU-ZYME (Calf) for the young ruminant.

* U. S. Patents Pending

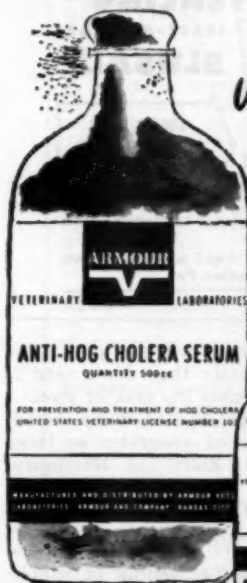
RU-ZYME (Calf) — "For The Young Ruminant". This highly-concentrated preparation supplies the young ruminant with the necessary rumen bacteria in viable form — essential vitamins and required enzymes for digestion and assimilation of milk and feed-stuffs. RU-ZYME (Calf) induces correct rumen function at an earlier age and helps to retard scours due to digestive disorders.

RU-ZYME (Calf) FEATURES SELECTED CULTURES PRODUCING GROWTH-STIMULATING FACTORS.

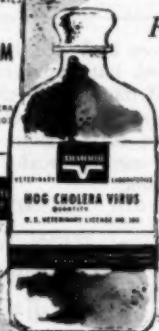
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*use Armour anti-hog cholera
serum and hog cholera virus!*



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Sold to
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Successfully
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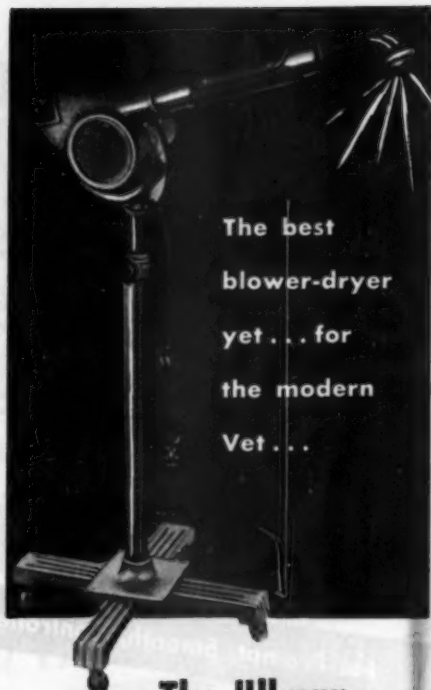
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